SURGICAL DISEASES

OF

INFANTS AND CHILDREN.

BY

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TRANSLATED FROM THE FRENCH

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PREFACE.

My object in publishing these notes on the surgical diseases observed in children has not been to embrace the entire domain of infantile surgery. I have wished only to sum up my views on cases which I have most frequently met with, and which particularly served as subjects for my clinical lectures at the Hôpital des Enfants from 1840 to 1860. I have wished to make known the results of my practice, and to point out both my successes and my reverses. If I have omitted several points, it is because I have hesitated to speak of very rare malformations, which I have scarcely ever met with, or of diseases which are very rarely observed in children, as aneurisms of the arteries, varix, or varicocele, of which I have seen but one example operated upon with success by the plan of M. Ricord. The same may be said of congenital luxations, which I have seldom seen, except luxation of the coxo-femoral articulation, that of the superior extremity of the radius, and of the clavicle, and a few others that I have scarcely been able to observe sufficiently.

I have rather preferred not to speak of those subjects on which I could not base very practical opinions; and I have limited myself

to offering to students and practitioners, in concise descriptions which doubtless leave much to be desired, what I have learned by examination and study, what I have done, and what I have observed in a large number of cases in my experience with little patients.

NOTE BY THE TRANSLATOR.

In offering to the American reader a translation of the valuable work of M. Guersant, it has been deemed expedient to preserve, without note or comment, the original text of one whose authority on the surgical affections of early life is so generally recognized. As allusion is liberally made by the author to the experience of other French writers and practitioners on almost all the subjects discussed, this treatise on the Surgical Diseases of Children may be justly regarded as a reflection of the views of the most distinguished surgeons of that country, in the very interesting class of cases embraced in it.

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As a result of these cases of ophthalmia, we sometimes find the cloudy cornea covered with vessels, which pass over it from the conjunctiva. Following the example of Prof. Sanson, we have made circular cauterization around the cornea, and have in such cases seen the cornea become again transparent. To perform this operation, we have always chloroformized our patient, and employed either the ring porte-caustique of Sanson, or a pointed pencil carried rapidly over the circumference of the cornea. Independently of chloroform, we must employ elevators for the lids, and have one or two assistants to hold the child properly.

2. *Hygienic and Medical Treatment.*—The hygienic treatment consists in modifying the diet according to the age of the little patient and the condition of the intestinal canal. If there are any febrile symptoms, we must diminish the nourishment; but if there is no frequency of pulse, we must give it the milk of the nurse, if it is still at the breast, and, if accustomed to another kind of nourishment, it is desirable that this should be continued. We must still take the precaution, in moist and cold seasons, to keep the child in an apartment properly warmed, according to the season, and not to take him into the cold air, if it is at all unpleasant. It is better that we should not keep the patient in a room made too bright by the light of the sun or by artificial light. The child should not, on the other hand, be kept in complete darkness, but in a medium light. It is, above all, improper to cover the eyes with thick and tight bandages, a light piece of linen being sufficient, if there is photophobia. In fine weather it will be of service to the child to give it the fresh air, taking the precaution to choose a time when the pain from the disease is least, and carefully covering its head with a light veil.

There frequently remain on the cornea one or two spots, which in time may be diminished, and even when they are of considerable size they sometimes entirely disappear. We have found that by means of insufflation of calomel and sugar-candy into the affected eye, employed after the disappearance of inflammation, once only in the morning, with the dropping of a single drop of laudanum in the evening, we may hasten the resolution of these specks.

CHAPTER XXX.

INCONTINENCE OF URINE.

INCONTINENCE of urine is of frequent occurrence in children, both in girls and boys, being met with in the former quite as often as in the latter. It most generally dates from birth, and sometimes continues until the child is fifteen years or more old. In the earliest period of life the quantity of urine excreted, compared with the fluid drunk, is very considerable; the bladder contracts very often, the urine is very slightly coloured, and there is no difference between that of the day and of the night. In children there is no, or very little, absorption through the bladder, the urine is abundant, and when the child is very young, defecation and urination are accomplished day and night almost without any desire for them. The resistance offered by the neck of the bladder and the sphincter ani is so slight that a single contraction of the bladder and the rectum suffices for the expulsion of the urine and the fecal matters.

At a later period, about the end of ten or twelve months, children have a sensation, which then first leads them to retain the fecal matters. The faculty of retaining the urine is developed somewhat later, after first dentition has been accomplished. It is then that the child, that does not retain its urine, is affected with considerable incontinence, if it also possesses its intellectual faculties. Otherwise, if it is idiotic or attacked with paralysis of the rectum or bladder, there would be symptomatic incontinence of urine, which would demand a treatment of the principal disease.

Causes.—Incontinence of urine in children is sometimes diurnal, at other times nocturnal, and this is the most frequent form. Whichever it may be, the cause may not always be the same, and if, as is often the case, there be weakness, this may be the real cause. In fact, we quite often see strong children, in good health, with nocturnal incontinence of urine. We may at first discover in them no general weakness, and the condition may depend on too frequent and sudden contractions of the bladder, as Desault thought.

In others we find a lymphatic, scrofulous, or rachitic constitution, and the incontinence is then referable to this general cause. In the former, the cause is nervous irritability, and here, with MM. Bretonneau and Trousseau, we recognize a neurosis of the neck of the bladder. According to Dr. Mondière, who has written on this subject, many young boys, apparently of excellent constitutions, are subjects of this affection. We cannot, then, always refer incontinence to the same causes. Nevertheless, we believe that if the lymphatic constitution is often met with in children who urinate in bed, the incontinence would really arise from weakness, while in others, who are strong and robust, we would be induced to believe that profound sleep is a cause that may be invoked; or else the too frequent contraction of the bladder.

This disease, which is easy to recognize, especially presents itself in the impossibility of retaining the urine at night, and is characterized by the discharge of urine several times or only once or twice during the night; and this condition persists, no matter what may be done to prevent it. Even if we make children urinate when they go to bed, or wake them several times in the night for the same purpose, it very often happens that they still pass their water in the bed in spite of all our precautions. In these cases we believe there is want of tone of the bladder, whatever may be the general constitution. This may be combated by the will while the child is awake, but sleep puts the whole muscular apparatus in a state of muscular relaxation.

Reviewing these causes, we consider that incontinence may be due to feebleness of the patient or a bad constitution, nervous irritability of the bladder, and, in some cases, profound sleep.

Prognosis.—This is a very annoying disease, but it is not dangerous; it is only tenacious. Generally it yields, at the latest, at about eight or nine years of age, and yet it is sometimes in exceptional cases met with at the age of puberty. After the employment of different treatments without success, it ceases with time. When it does cease, we must not believe that we have cured it; fever, an eruptive disease, a day of much fatigue or in which the child has perspired a good deal, may momentarily cause the patient to pass a night or two without having involuntary passages of urine, but two or three days afterwards the incontinence reappears. Thus, then, we must believe that there are some circumstances that

may cause intermission of greater or less length. In all cases, if we can make a favourable prognosis in respect to its non-gravity, we can only be sure that the disease will not be tenacious. Very often it demands time for its cure.

Treatment.—We will not speak of the popular remedies, which are numerous, and to which we attach no importance. The treatment may be external or internal. The complaint being very rebellious, of long duration, sometimes only yielding with time, and not to remedies that are advised, it is right that we should employ successively different modes of treatment, and have recourse to both internal and external medication.

1. *External Treatment.*—If we can learn at once the cause producing the incontinence, we may employ one remedy rather than another; but as we cannot easily decide this, we employ successively the following external remedies. We may advise river or sea bathing in warm seasons, applications of cold water over the hypogastrium or to the perineum, cold lotions over the whole body morning and evening, shower-baths, douches of cold water on the loins and the posterior part of the pelvis, and cold immersion baths. In cold seasons, we would give the preference to tepid sulphur, saline, and gelatinous baths, and vinous or aromatic baths. These different remedies have given good results, especially if perseveringly used. The introduction of a catheter for a quarter of an hour, morning and evening, into the canal of the urethra, has been suggested; and cauterization of the neck of the bladder with nitrate of silver two or three times, several days apart, has also been practised. It has been advised that injections of cold water should be thrown into the bladder, and that this be repeated several days in succession. In some cases we may derive advantage from electricity. Compressors of the urethra have also been applied during the night, and by this method, proposed by J. L. Petit, the bladder has been forced to retain the urine. M. Jacquemin has employed them with success in young patients.

2. *Internal Treatment.*—We have used internally for incontinence, as others have done for a long time, tonics, cinchona, iron under different forms, antiscorbutics, preparations of iodine and iron, cubebs, ergotine, and strychnia. To complete this internal treatment, we must add a proper regimen, which should be tonic, principally good roast meats; the patient should drink but little water, but good wine; avoid soup in the evening, at dinner; and

eat but few beans and but little fruit that has a tendency to the urine.

After having resorted to all the external and internal means advised for incontinence of urine in children, we may say that the agents that have succeeded most frequently are cold baths, sea-bathing, sulphurous and shower baths, douches of sulphurous water, or of cold water, combining with it a tonic treatment, cod-liver oil and ferruginous preparations when the children thus affected are delicate, lymphatic, or scrofulous. But when they are not of such a temperament, but rather nervous, sea-bathing, sulphurous baths, and douches, often excite them without any good result following. We must subject such cases to the use of other remedies, either the preparations of belladonna or the employment of strychnia. The belladonna may be given in pills, containing the simple extract combined with the powdered root, in appropriate doses, morning and evening, gradually increased. The strychnia may also be given in pill form in combination with the black oxide of iron, evening and morning.

Whatever the treatment may be, we must persevere in it a long time—two, three, or six months. M. Trousseau, who has great confidence in the extract of belladonna, as prescribed by Bretonneau of Tours, and advised by Thomas of the same city, and Dr. Blache, recommends that it be given perseveringly, commencing with a moderate dose, and gradually increasing it, for several months in succession. We must not cease the use of belladonna just as soon as we have procured a decided amelioration, but continue it without increasing the dose, and only stop it little by little by diminishing the dose, until we reach that with which we had commenced.

This treatment should be modified according to the effects produced in different patients, either suspending it or abandoning it entirely.

CHAPTER XXXI.

CANCER OF THE EYE.

CANCER of the eye is met with more frequently in children than in adults, and is presented under two principal forms, encephaloid and scirrhus. Melanosis is very uncommon in children; fungus hæmatodes sometimes occurs.

Pathological Anatomy.—Encephaloid is frequently found to commence by a point on the retina, and then to invade successively all the elements of the eye. It does not differ from that met with in other regions, and is a soft tissue of a consistence and colour analogous to softened cerebral tissue. Scirrhus is hard, resisting, and whitish, and when cut resembles fibrous tissue. It begins in the globe of the eye, without our being able to ascertain satisfactorily its point of departure. The melanotic tissue presents itself in the form of a soft bluish-black tumour, and may commence in the interior of the globe, and sometimes in the external parts. These various tissues are met with in the eye, and sometimes spread into the cellular tissue of the orbit, invading the eyelids, and even penetrating through the foramen of the optic nerve into the base of the brain, the structure of which they attack and modify. Even the bony walls of the orbital cavity are sometimes altered to a greater or less extent.

Causes.—These are obscure, as in all cancerous affections; nevertheless, it is established that sometimes this disease follows a contusion, but usually there is at the same time a disposition to a cancerous affection. We must admit two different forms or varieties; one commences through the retina and constitutes encephaloid, the other by attacking the whole globe, constituting scirrhus of the eye.

In the *first stage* of *encephaloid* the eye looks healthy, the sclerotic is white, there is no redness, and the iris has its normal colour and mobility. Children that are not very young complain that they see badly or not at all, but not of any pain at the com-

mencement. Gradually, if the disease progresses, the pupil becomes irregular, and if the light is made to penetrate obliquely into the eye, we notice at the bottom something brilliant, and in the concavity of the globe we discover a spot of a copperish colour on the dark base of the eye. This is of the size of a small bean, then gradually increases, and invades the whole breadth of the retina, and is radiated with red vessels. If the pupil has been previously dilated with atropia, all the symptoms are more easily detected. The tumour compresses the vitreous body, which becomes liquefied, and now enables us to see the encephaloid matter.

In the *second stage*, the inflammatory condition, which did not exist at first, now commences. The tumour becomes prominent in front, and pushes the crystalline against the iris, the eye increases in volume, the sclerotic becomes injected, and there is redness and lachrymation. The iris, pushed forward, becomes joined to the cornea, the irregular pupil becomes immovable, dilated, and discoloured, the diameters of the globe of the eye are augmented in all directions, the conjunctiva becomes infiltrated, and forms a ring around the cornea, and the lids, also infiltrated, are pushed forward by the prominence of the eye. At the same time there are very acute lancinating pains, chiefly at night. Children complain incessantly, and are then attacked with intense and continuous fever, sometimes delirium.

Third Stage.—Up to this time the outer coat has resisted, but soon it breaks, and sometimes the cornea, at other times the sclerotic, becomes torn. The very acute pains caused by the strangulation then partly cease, and this cessation reveals to us that rupture is effected. If the sclerotic is opened, we may not see at once the encephaloid tissue appear, but if the rent extends to the cornea, a reddish sanguinolent fluid makes its appearance, the crystalline escapes, the tumour becomes prominent, diffuses a fetid odour, and is sometimes the seat of hemorrhage. General debility throws the child into a state of coma, and death soon follows.

In *scirrhus* of the eye, the disease invades the entire globe. At its commencement, we recognize all the symptoms of internal ophthalmia, such as lachrymation, photophobia, redness of the eyeball, and injection of the eye, the sight becoming gradually weakened and completely lost. The pain, which becomes more and more acute on the corresponding side of the head, soon becomes continuous, with loss of sleep, diminution of appetite, and at the same time

swelling of the submaxillary and auricular ganglions; the globe of the eye increases in volume, loses its shape, and becomes irregular. The cornea remains for a long time healthy, the iris becomes displaced and is inclined forwards, and the anterior chamber becomes filled with blood. All this progresses slowly, while in encephaloid the development is more rapid; gradually chemosis occurs, the cornea becomes altered in its shape, and the vessels become varicose. The eye projects between the lids, becomes ulcerated at several points, the cellular tissue of the orbit passes into a cancerous condition, as well as the lids, which can no longer be moved, the eyeball likewise remains fixed, and then the disease progresses more rapidly, the child becomes exhausted with continuous fever, and death soon occurs with or without convulsions. Encephaloid progresses rapidly, scirrhus is developed slowly. In either case, the disease is grave, and unhappily always followed by a recurrence after operation.

The only *treatment* consists in the extirpation of the globe of the eye. There are two kinds of operation to perform, whether the eye and the lids are affected, or the lids are healthy and only the globe is involved.

When the eye alone is affected, we may operate in the following manner. Having laid the patient down, with his head supported and resting on a pillow, and then chloroformizing him, we enlarge with a bistoury the external angle of the lids, and seize the eye with the Museux forceps, or a tenaculum, or introduce a curved needle conducting a thread. The operator, holding the forceps, the tenaculum, or the thread in the left hand, or having it held by an assistant, draws the eyeball slightly towards himself while another assistant keeps the lids separated with two elevators. He then introduces a straight bistoury, after the manner of Louis, into the external angle of the orbit and along the bony wall, incising all the soft parts surrounding the globe. He spares the mucous membrane which borders the eyelids, unless these latter should themselves be affected and must be sacrificed. He then divides at a single cut, with curved scissors, the optic nerve and the recti muscles, which retain the eyeball at the bottom of the orbit. No inconvenience results from removing the lachrymal gland, even when it is not affected. Several surgeons, Demours, Sanson, and Lisfranc, recommend this ablation of the gland. We should, in conclusion, make a careful exploration of the fatty tissues

of the orbital cavity, and remove them with the forceps and curved scissors if they are ever so little affected. It is very difficult to make a complete extraction of the affected tissues, for very often they penetrate through the fissures of the base of the skull, and creep into the cavity of the bone; sometimes even the bones are attacked, and the indication is to scrape them.

The dressing should be very simple, such as charpie steeped in cold water, and very gently placed in the orbit. Slight compression might be used if there be hemorrhage; otherwise we must avoid all compression, which may produce symptoms of encephalitis, and these should be very attentively watched. The orbital cavity is filled with granulations, and a transverse cicatrix gradually results. We must acknowledge, however, that too often cancer grows out again, and that granulations of a malignant character appear. The indication is to repress them immediately, but we rarely accomplish their destruction.

During twenty years at the Hôpital des Enfants, in more than thirty or forty patients operated on for this terrible disease, we only obtained cures of very slight duration, even by removing the eye at the commencement, when there as yet existed on the retina but a simple yellowish tumour. We have most frequently met with relapses before the formation of the cicatrix, or at the latest a year or eighteen months afterwards, and these then progress with extreme rapidity. Pain, generally of very great violence, forces from the child continual groans and cries; fetid pus runs over the face; the patient becomes exhausted, and sometimes hemorrhages occur, repeated with greater or less frequency, and finally the patient falls into a state of marasmus.

CHAPTER XXXII.

CLUB-FOOT.

We meet with a deformity in the new-born, to which we apply the term club-foot, characterized by a permanent vicious deviation of the foot. For a long time two varieties of this disease have been distinguished, the congenital and the accidental. The former is of course observed at birth, the latter subsequently, and is only

the consequence of diseases which declare themselves more or less tardily and the cause of which we can appreciate. By the faulty direction of the foot in various directions, we distinguish four principal kinds, talipes equinus, talipes varus, talipes valgus, and talipes talus.

In talipes equinus, the point of the foot is inclined downwards, and the patient walks upon the toes, the sole of the foot and the heel not touching the ground. In varus, the sole of the foot is turned inwards, and the outer edge of the foot bears upon the ground. In valgus, the contrary is the case. In talus, the patient walks on the heel, the sole of the foot looks forwards, and the toes are directed upwards.

The *causes* which produce congenital club-foot have their action in the mother's womb, and cannot be very positive, being rather presumable or conjectured. It is thus that club-foot becomes hereditary, and we meet with children the issue of club-footed parents. Independent of this inherited cause, we must suppose that a child comes into the world with a club-foot either as the result of a primary anomaly, the cause of which exists in the germ, or of an affection seated in the nervous system, convulsions or other diseases of the cerebro-spinal apparatus, which we must admit may become developed in the fœtus as in the new-born child, or by a bad position taken by the child. The mother being questioned and watched, we may sometimes learn by her answers that she herself is very impressible and very nervous, having had convulsions at various times, either before or during her pregnancy, and that thus the child may take from its mother, and have intra-uterine convulsions. Whatever the cause, we are reduced to mere conjecture, but in all cases we find permanent muscular contractions.

Symptoms.—Careful investigation presents us with different symptoms, and we will therefore describe these and the indications for treatment in the four kinds of club-foot.

In *talipes equinus*, which is quite rare, I refer to that which is simple and uncomplicated, the child walks on the point of the foot or the toes; there is forced extension of the tibio-astragaloid joint, the foot is inclined forwards, the heel raised backwards, and the sole of the foot looks backwards. There is another variety, in which there is very considerable extension, the foot is turned in a direction from above downwards, the sole of the foot looks upwards,

and the dorsal surface rests on the ground. The French term "*Enroulement*" has been given to this variety.

In simple talipes equinus, there is, so to speak, only a decided contraction of the tendo Achillis, and consequently the muscles of the calf, the flexor muscles of the foot and of the toes then act like the tendo Achillis, and contribute to this vicious position of more or less decided forced extension of the tibio-astragaloid articulation. In *enroulement*, there is sometimes very powerful contraction of the flexor muscles of the toes, the muscles of the plantar surface, and the aponeurosis.

In *varus*, the foot is strongly adducted, the outer border of the foot rounded and depressed, the inner elevated and concave, and the point and the sole of the foot look inwards, as well as the heel. The child walks on the outer border of the foot, the internal malleolus is effaced, and the external is very prominent. The tibialis anticus and tibialis posticus muscles are shortened and tense, the peroneus brevis is elongated and weakened, and the peroneus longus and extensor digitorum pedis are also elongated. The weight of the body rests on the foot, and distends the ligaments which are already elongated by the vicious position; the skin covering the fifth metatarsal bone, which rests on the ground, is painfully compressed at the point corresponding to the projection of that bone, and becomes covered with corns in patients who walk for any length of time with this deformity.

The varus we have just described is usually complicated with symptoms of talipes equinus; the heel is carried at once inwards and upwards, the astragalus is depressed in front, its pulley becomes exposed under the skin of the dorsal surface of the foot, and we then have a variety, to which the name *varus equinus* has been given. Varus equinus presents still some subvarieties in which there are more or less marked subluxations of the bones of the foot, with displacements of the bones, which M. Rouvier has very carefully described in his lectures at the Hôpital des Enfants. There are also numerous deformities of the bones, also described, involving the astragalus, the scaphoid, the calcaneum, and the cuboid, and more or less marked by reason of the exaggeration of the deformity.

In *valgus*, the foot is contracted outwards, the patient has a tendency to walk on the inner border of the foot, through the action of the peronei muscles and chiefly through the peroneus longus

muscle, which, by its contraction, elevates the outer border of the foot. Valgus is always accompanied with more or less equinus.

Talipes talus is the most uncommon form of club-foot, and is generally congenital. It is characterized by direct flexion of the foot upon the leg. We have had occasion to meet with it in two new-born children, the feet being at an acute angle with the leg. This angle varies according to the case, and may be more decided in some cases than in others, the point of the foot cannot be brought down, extension is limited, and flexion carried beyond the normal state. The tendo Achillis is relaxed and appears prominent, and the tendons of the flexors of the foot contract when we forcibly bring down the foot. It is very rarely that talus is unaccompanied with valgus; in other words, the outer border of the foot is always more or less raised.

Talipes talus may be either hollow or straight; in one the sole of the foot is hollow, in the other it is flat. In the former, the triceps cruris is paralyzed or weakened, the muscles of the sole of the foot and the plantar aponeurosis are shortened and contracted, while in the latter, there is no such paralysis, as M. Duchenne of Boulogne has satisfactorily shown by electricity.

Differential Diagnosis.—The various forms of club-foot are, as already said, congenital and accidental. An examination of the foot and the antecedent history of the case given by the parents enable us to distinguish these two varieties from one another, but it is often difficult to recognize a club-foot at all, when it is not well defined, and the deviation is at its commencement. Sometimes there is great difficulty in distinguishing contraction of the muscles which produce an exaggerated position, but without permanent contraction, and which yields as the result of convulsions, or eclampsia. In these cases we may have difficulty in forming a diagnosis, and we must examine these with scrupulous attention, and resort to electricity. There are also difficulties in the diagnosis, when several varieties of club-foot are complicated together.

Prognosis and Treatment.—This may vary, according as the club-foot is congenital or accidental. If the former, the prognosis may be not at all grave, if the deviation is not considerable. Simple means may easily produce straightening, if the child is very young, for if of long standing there is more resistance to overcome, and after twelve or fifteen years of age there is but slight prospect of success. If the club-foot is accidental, the muscles are frequently

paralyzed, and the case is still more serious. We have several times seen the talus variety at birth easily straightened by applying bandages in a certain way to bring the feet straight, and to keep them in forced extension. In a few months we have brought them to their normal condition.

It is not the same thing, however, in regard to the equinus, varus, and valgus. These three varieties, simple or complicated, present greater resistance and they interfere more with walking. The indication is to endeavour to restore the deformity to the normal state, after having employed simple apparatus, retaining methods by means of bandages, or even mechanical means, or they demand at once both tenotomy and apparatus. We do not hesitate to operate in the first year after birth, if the child is in good health, and the club-foot resists manipulation and apparatus.

1. *Talipes equinus.* In this form of club-foot, in which the point of the foot is depressed and the heel raised, we have the tendo Achillis to contend with. The muscles of the calf are contracted in a permanent manner, and in endeavouring to bring the foot to a right angle, we observe the resistance of the tendo Achillis. Here, as in all the forms of this affection, it was a very long time ago remarked that mechanical means fail to overcome the action of contracted muscles, and that it is necessary, without abandoning such apparatus, to aid them by division of the tendons, this division being made in those days in rather an irregular manner. Delpech, in 1816, performed the first tenotomy, and about twenty-five or thirty years later, in Germany, Stromeyer and Dieffenbach practised it; and afterwards, in France, MM. Bouvier, Duval, and Guérin advocated and regularly performed division of the tendons of contracted muscles in the different forms of club-foot, and from that time the following methods and procedures have been used in our own practice.

To speak here only of the equinus, we will say, in the first place, that in this form of club-foot, as in the others, it is best to give careful attention at once to the deformity at birth. Several means may be adopted, including the use of the hand, simple bandages, mechanical appliances, and tenotomy.

With the hand we may, from a few days after birth, act upon the tendo Achillis, gradually bringing the foot towards a right angle, morning and evening, holding with one hand the lower extremity of the leg near the malleoli, and with the other grasping

the foot. The hand holding the leg should keep it firm; the other should impress on the foot movements of flexion. By means of a simple bandage applied to a new-born child, carrying the foot as much as possible to a right angle, and by daily renewing these manipulations, we may obtain successful results in this form of club-foot; but when the child has become a year old, and no good has been done by these manual efforts to straighten the foot, the indication is to employ more powerful methods, bandages, for instance, made with splints or wooden boards, padded, and of the length of the leg, on which the latter is to rest, and at the extremity of which is a wooden sole with a hinge-joint, which enables us to move the foot in various directions, and chiefly at a right angle, for the equinus. We have found this apparatus, which is particularly easy to make, of good service. We have also successfully employed starched or gutta-percha and even plaster apparatus, moulding these bandages on the feet, which are placed by the hands in a normal position; but we derive more benefit from mechanical boots, contrivances which are made of a more or less improved character at the present day by surgical instrument makers. They are generally designed to replace in a permanent manner the action of the hand employed to straighten the foot. In early childhood, we may produce cures with them.

For the equinus, a mechanical boot, composed of a splint secured to the leg by a strap at the upper part and to the lower extremity by a sole, which enables the foot to be gradually brought to a right angle, being arranged expressly to fit the patient, may sometimes answer the purpose perfectly; but after the child has worn this apparatus for several weeks without any result, we should decide to perform tenotomy, and this operation may be practised even when the child is a year old. In such a case, as in several other forms of club-foot, we will have only the tendo Achillis to divide. For this operation, it is not necessary to chloroformize the patient; we must lay him on his stomach, and have his leg held by an assistant, who with one hand supports it at the lower part above the malleoli, and with the other causes the tendo Achillis to project, by flexing the foot as much as possible. The operator, supporting also the leg with the left hand, performs subcutaneous tenotomy, as advocated by MM. Duval, Bouvier, and J. Guérin, using for the division a straight, very narrow and sharp tenotome. He plunges the point of the instrument flatwise, passing it along the posterior part of the

tendon opposite the malleoli, in the direction of a line from left to right, or from right to left, depending on which side is operated on, but without piercing the skin on the other side. The instrument being then withdrawn, is replaced by a probe-pointed tenotome, introduced at first flatwise; its edge is turned against the tendon, its back portion being behind the skin, and the edge is conducted like a violin bow so as to divide the tendo Achillis from behind forwards very slowly, in such a way as not to cut abruptly the tendon, which lies close to the vessels and nerves on the side of the internal malleolus.

After this division, there is a want of resistance; we detect the space between the ends of the tendon, and we feel its cellular sheath, a portion of which remains at the place of division. This is the point where repair occurs, cicatrization commencing by an inflammatory condition, followed by union. The division being made, the instrument is withdrawn. The little puncture is united with a piece of isinglass plaster, retained with a stirrup bandage, and we apply the apparatus anew two days afterwards, when the wound is united. If suppuration occurs, we retard it. It appears to us important to establish satisfactorily union of the wound before applying apparatus. For want of this precaution, we have detected erysipelatous inflammation around the puncture, and there may even be abscess, but this rarely occurs. The apparatus once in position, we must straighten the foot gradually each day. The use of this boot should be watched every day, to avoid too strong pressure of the apparatus, for this may often cause excoriations or bruises of the skin, which can only be prevented by dint of great care and by not too roughly tightening it. In such cases it is very important to listen to the complaints of patients, which sometimes are without cause, but often also well founded, of the pressure of the apparatus. This may be remedied by taking off the boot, powdering with potato-starch the bruised parts, and especially by loosening the apparatus.

Finally, we make the patient wear this mechanical arrangement for several weeks, the action of which is carried even to exaggeration of the straightening we wish to obtain, and only after some time do we allow him to walk with the apparatus. When we wish to remove it, we must not do so without having previously had boots arranged to permanently overcome the deformity. These may be

worn in the daytime, and taken off at night and replaced at that time by the apparatus previously used. It is only by persevering for several years in these applications that we may successfully overcome abnormal deviations of the foot. A long time after this operation, we have found the cicatrix of the divided tendon firm, gradually extended, and giving greater or less length to the contracted muscle. With all our care, the tendon may remain too short, and the cicatrix may not have been formed with sufficient space, and we are then obliged to perform a new operation.

2. *Varus* is the most common form of club-foot. In this variety the foot is carried inwards, the point as well as the sole of the foot; it is, besides, in extension, consequently more or less equine, and hence the condition is called equinus varus. In walking, the foot rests on the outer edge, the toes are pressed back, sometimes luxated, and there is frequently a tendency to displacement between the two rows of the tarsal bones, but this is not always the case. There are varieties of this form of club-foot that incline towards equinus and valgus. It is rarely that we meet with a totally uncomplicated varus. The older it is, the more likely it is to be complicated with deviation and deformity of the bones of the foot.

3. *Valgus*, which is more uncommon than varus, is still not a simple valgus; the foot is turned outwards, but there is a union of extension, as in equinus, and of abduction, and hence the term equinus valgus or valgus equinus has been given to it. There are varieties of this affection of a more or less decided character, often even accompanied with deformity of the bones, increasing with the age of the patient.

Let us examine successively the varus and valgus forms of club-foot, and the treatment appropriate to each.

In varus, we always find that the tendo Achillis is more or less contracted, and then we must commence by flexing the foot, which is extended, and by simple or mechanical apparatus act at first on the tendo Achillis. But the foot is in a state of adduction from the contraction of the tibialis posticus and the flexors of the toes, which thus produce it; we must overcome these deviations by the arrangement of apparatus and appliances properly made to fulfil the indications opposed to adduction of the foot, and then afterwards by tenotomy, when this becomes necessary. It should be performed on the tendo Achillis, on the tendon of the tibialis pos-

ticus, near its inferior insertion below and on the inside of the scaphoid, and on the tibialis anticus, on its insertion at the posterior extremity of the first metatarsal bone. Tenotomy is performed on the tendo Achillis, as already mentioned for equinus; but it is not always sufficient. If other tendons, after division of the tendo Achillis and the tendon of the tibialis, appear to interpose resistance to the straightening, we must, in making them prominent by extending the foot, divide them also. At the end of two days, when the small wounds of the skin are cicatrized, we should apply mechanical apparatus, using for varus that which we have already referred to for equinus.

For *valgus*, the apparatus should carry the foot inwards, and should combat the action of the peronei muscles; and when, after being worn for a certain time, it does not remedy the deformity, we must resort to tenotomy, which, in this case, should be performed successively, but the same day if possible, on the tendo Achillis and the tendons of the peroneus longus and peroneus brevis, where they appear to be stretched under the skin when the foot is forcibly adducted.

As for *talus*, generally the action of the tendo Achillis is null, and the flexors of the foot or extensors of the toes act alone. This kind of club-foot, which is often complicated with valgus, yields in time to the use of apparatus well and perseveringly applied.

From congenital club-foot we now pass to the accidental form. The majority have for their cause, convulsions, which have produced at the most tender age, or still later, more or less complete paralysis, which affects the lower extremities. Often by medical treatment or in the course of time these paralytic attacks progress towards a cure, but with the re-establishment of movement in certain muscles and not in others. From this, contractions of some of the muscles result, which produce various kinds of club-foot. These secondary club-feet ought not to be treated surgically immediately after their appearance, for by treating the cause of the paralysis with perseverance, or by the assistance of nature, it sometimes happens that we have equilibrium re-established in the muscles, and the deformity more or less abated. But if the paralyzed muscles do not regain their power, we must treat these accidental club-feet like the other forms; we must put on apparatus, and even, in certain cases, practise tenotomy, but it often happens that the muscles remain

paralyzed, and that we are obliged to make the child wear mechanical boots.

To sum up, congenital club-foot may be treated with success sometimes by simple apparatus or mechanical boots, by applying these during the first year of life or later. At the commencement we should apply very light apparatus, and increase the power in proportion to the age and the muscular resistance. When in a few months we do not obtain straightening, we should resort to tenotomy, often of the tendo Achillis alone, and sometimes of other tendons. It is better to leave the patient for two days after the operation with a simple dressing, and only to apply the apparatus at the end of about forty-eight hours. We must, in the first stages after the operation, aid every day or two the straightening by a series of manipulations, which overcome the deviations, by different movements directed for about a quarter of an hour in whatever direction the nature of the deformity may demand. The subsequent application of apparatus should be watched with the greatest care, to avoid very injurious pressure on the limb.

We must prolong for an extended time, sometimes for years, the employment of mechanical means, and often modify them according to circumstances. All things being otherwise equal, we shall have greater chance of success in treating club-foot too soon rather than too late. Very simple and very light apparatus should be used at the commencement of the treatment, and we should employ mechanical means only if other plans fail. Finally, we may operate with benefit about the second year after birth, but greater care and precaution are needed if the child is very young. Up to the age of twelve or fifteen we may hope for success, but after that period, if success follows, it is exceptional.

The remarks here made on congenital club-foot may also apply to the accidental form, except that, in these last cases, before resorting to tenotomy, we must have exhausted such remedies as can attack the cause of the paralysis of the muscles. In these accidental club-feet there is often less chance of success, because the paralysis may resist all the means advised; but as they may sometimes succeed, we should never neglect them, such as gymnastics, shampooing, sulphurous baths, electricity, friction, etc. Unfortunately, all means usually fail, and the children are obliged always to wear apparatus to assist them in walking.

CHAPTER XXXIII.

CANCER OF THE TESTICLE.

CANCER of the testicle is not extremely uncommon in children; many authorities cite examples of it, and we have, for our own part, seen at least ten cases in very young children, even at birth, a year of age, etc.

Pathological Anatomy.—The tumour formed by the degenerated testicle represents, as in the adult, a scirrhous and often encephaloid structure. Sometimes we have met with colloid or fibro-plastic tissue. The examination of a testicle that was removed by us exhibited an organ of more than three times the natural size. It was smooth, soft, and revealed to the eye a firm tissue, white and resisting in certain points, having a lardaceous appearance, while in others it was of a soft encephaloid substance, rosy, nearly diffluent, studded with small bloodvessels, and easily crushed under the fingers. The albugineous covering or tunic appeared to us healthy under the microscope. We discovered the existence of fibro-plastic nuclei, more or less infiltrated, and only here and there, in the midst of the tissue, irregular cellules of a granular form. We noticed some red points formed by extravasated blood, but we did not detect seminiferous vessels. We have not had occasion to see tumours of this kind which had produced ulceration of the scrotum, but others have met with examples of it; neither have we seen chimney-sweeper's cancer, which is more common in England than with us.

At the autopsy of children who have died as the result of a recurrence of the disease, we have found lymphatic ganglions, which have passed into a cancerous state, and sometimes also cancerous lesions in other organs, as the mesenteric ganglions and the liver.

Causes.—In children the causes are perhaps still more obscure than in adults. We have seen cancerous testicles in children whose parents had not had cancer, consequently we cannot say that

this disease recognizes hereditary transmission for its cause in all cases. Sometimes bruising of the organ may give rise to degeneration; therefore, if the testicle of a child becomes cancerous after a contusion, we may admit that this circumstance operates to excite it in an organ already predisposed by an organic cause.

Symptoms.—The commencement of these cancers passes unperceived. Children are frequently brought to us when there is first discovered in the scrotum a development which has already existed for a long time, and we can therefore say, as children do not at the outset suffer, that the disease is at first indolent, and appears under the form of a tumour, which occupies either the right or the left side of the scrotum. Thus, when we examine a child who is suffering from a cancer of the testicle, we discover a tumour of more than double the ordinary size of that organ, with a certain weight and elastic consistence, most frequently without change of colour of the skin, the venous circulation of which appears slightly modified, the scrotum generally sliding over the non-adherent testicle, often without pain. We easily detect the tumour as distinct from the cord; it rests more or less heavily upon it, is well separated from the inguinal ring, and usually presents a rounded shape, sometimes tuberculated. Generally we have not met with this last appearance, but others have done so. When the disease is recent, the glands of the groin are not found to be swollen, and the cord is healthy; and there is usually no fluctuation, unless the affection is complicated with hydrocele. Nevertheless, when the testicle is in an encephaloid condition, there is a softness, which might be confounded with the fluctuation of a fluid, but there is no transparency.

The *diagnosis* is sometimes difficult. If, as an explorative means, we make a puncture, there is little or no fluid, and the instrument is not movable as it is in a bag of fluid. The tumour is distinguished from tubercular tumours, which are met with in children presenting other symptoms of tubercles; in such cases the skin of the scrotum is adherent at the point corresponding to a softened tubercle, and there is a more or less decided prominence, in which we find a real fluctuation formed by pus. We may confound these degenerated testicles with tumours produced by a false conception, sometimes seen in this region; but these tumours are rare. By the touch we detect, in such cases, hard or bony parts, as we have had occasion twice to find. Before removing them, we may be

uncertain from the touch alone, but anatomical examination leaves no doubt.

Inflammatory engorgements of the testicle become developed and progress rapidly, with pain, and this does not occur in cancer, which is indolent for a greater or less length of time. If there be hæmatocele, we may often mistake the disease, and it is only by an operation, when we expose the tumour, that we recognize the lesion. We must then leave the gland untouched, and only remove the hæmatocele, if that be possible.

The *prognosis* of this disease is quite as grave in the child as in the adult, and of six cases operated on by us, one, a patient of eighteen months, was carried off by convulsions, three days after the operation; one we lost sight of, and in the four others we saw or learned of recurrences, either in the glands of the groin or even in the deep abdominal ganglions.

Treatment.—At the commencement, and especially in the doubt as to the diagnosis, we may try the effect of preparations of iodine internally and externally; but in cases in which this treatment succeeds, it is probable that an error has been made as to the diagnosis, and that we have to deal with an engorgement of a scrofulous or tubercular nature. We must always, in these cases of cancer, resort to castration. In fact, if the anti-scrofulous treatment has failed, we must not rely on mercurials as often as in adults, where there are more positive fears of syphilis.

For the performance of this operation, as in adults, it is best to make an incision in the back part of the scrotum, prolonging it as far as its lower part, unless the gland, being adherent to the skin, which may or may not be ulcerated, requires the removal of the covering of the scrotum at any special point, for then we are obliged to remove a portion of oval shape from the coverings of the affected organ. The tissue once exposed, we isolate the cord, which we may cut, and tie the artery separately, or else tie the whole mass of the cord. We must then introduce a double silk thread, and bind together very firmly all the constituent parts of the cord, so as to completely include the nervous filaments. If some of the arteries besides the principal artery are divided, we must tie them and bring out all the threads together through the inferior portion of the wound. They serve to conduct the pus to the most depending portion. We should next apply three or four stitches, surround the scrotum with a fenestrated piece of linen

smeared with cerate, and covered with charpie, and support the whole with a suspensory bandage. To prevent inflammatory symptoms, we must sprinkle the dressing with cool water, taking care not to cease its use abruptly, to avoid reaction, which may induce erysipelas. We find it advantageous to renew the dressing on the next day and the following days, merely leaving the stitches, which should only be withdrawn, one after the other, according to the progress of cicatrization. In those on whom we operated, this result occurred rapidly, and suppuration was of moderate quantity, with no primary accidents; but we always met with a recurrence, except in one case which we lost sight of.

CHAPTER XXXIV.

ENCEPHALOCELE, OR HERNIA CEREBRI.

THE name encephalocele is given to hernia of the cerebrum or cerebellum through the separation of the bones of the skull. Generally this affection is congenital, and is observed at birth. The encephalocele may nevertheless be accidental, as the result of a wound of the cranium with loss of substance. We have observed these two varieties in children, but we chiefly meet with the congenital form. Congenital encephalocele exists especially in connection with the sutures of the cranial bones. We have met with hernia of the cerebellum through the occipital foramen. We believe that all the sutures, even the smallest, may be the seat of it. We have ourselves seen and others have observed encephaloceles making their appearance through the fronto-ethmoidal suture in the inner angle of the orbit. One such case occurred in our own experience, and Moreau, the accoucheur, has also seen one. Accidental encephalocele may occur in all the bones of the cranium.

Causes.—Frequently an arrest of development of the bones takes place in the fœtus and leads to congenital encephalocele; but accidental encephalocele is always produced by a wound or necrosis of the bone.

Symptoms.—The size of encephaloceles is very variable; some of them are no larger than a pea, others are as large as the head of a new-born child. In examining the tumour in the living sub-

ject, we find that it is round, smooth, uniform, more or less circumscribed, sometimes pediculated, and without change of colour of the skin; presenting pulsation, isochronous with the beat of the pulse, and increasing by expiration, coughs, and cries. If we press the tumour we may reduce it partially or entirely, and we may also by such pressure produce cerebral phenomena, as drowsiness or momentary paralysis of some parts of the face. Sometimes the encephalocele is not covered by the integuments, and the tumour appears with the membranes only.

These tumours may be confounded with cephalæmatoma, but the regular pulsations, which are very perceptible and very appreciable, and the border of bone which surrounds the tumour, are very distinctive characteristics of encephalocele. The diagnosis, therefore, can only be difficult where the tumours are very small, or where they appear through very narrow sutures of bones, the fronto-ethmoidal, for example. A tumour of the size of a pea, situated in this region, was mistaken by us and by several members of the Société de Chirurgie, for an erectile tumour, and a ligature was thrown around it, from which a rapid meningitis resulted, carrying off the patient the third day after the application of the thread which strangulated the tumour. Fungus of the dura mater might be confounded with encephalocele, for undoubted instances of such an affection have been observed in children, but in such cases the tumour is not for any length of time covered by the skin, it wears away and destroys the bony wall, is sensitive, the surface is bloody, and the pulsations are not always perceptible—for the fungus comes sometimes from the bony tissue, and is not adherent to the dura mater. In any event, it has often the appearance of an encephaloid cancerous tumour.

The *prognosis* of encephalocele is always grave; all we can hope for is, that the tumour may remain stationary. If it be of small volume, the child may live for a considerable time; but when it has become quite large, the intellectual faculties are more or less impaired, and sometimes the subjects of it are idiotic.

Treatment.—When encephalocele is complicated with effusion, the indication is to puncture it. Cures have been reported, not of the encephalocele, but of the effusion. Otherwise we should confine the treatment to gentle compression with covered leather plates, rather to protect the tumour from external shock than to compress it, for compression would be dangerous in the majority of cases.

These plates may prevent the violent shocks which have often produced immediate death, as has been found in some rare cases in which an attempt has been made to remove them.

CHAPTER XXXV.

CEPHALÆMATOMA.

Some children come into the world with blood tumours, which have been justly distinguished from erectile tumours seated in the thickness of the hairy scalp and the subcutaneous cellular tissue, and from sero-sanguinolent ecchymoses also seated in the subcutaneous cellular tissue of the hairy scalp; but there is a kind of tumour, known under the name of cephalæmatoma—blood tumour of the head—which depends on effusion of blood between the pericranium and the cranium itself. The effusion has sometimes, but rarely, occurred between the dura mater and the cranial bones; hence a division has been made into external and internal cephalæmatoma. The external variety, the only one we have ourselves seen, is a disease which is not very common, for obstetricians of the largest practice only meet with it at rare intervals. Michaelis and Schmaltz say that they are very uncommon, and Dubois reports that he had seen six cases. Three or four have presented themselves in our own experience, at the hospital, or in private practice. These tumours are met with on different parts of the skull; some authors state that they are chiefly seen on the two parietal bones, and quite frequently on but one of them.

The *cause* of this disease is obscure; it may be produced by a material cause, such as pressure on the head at the time of birth, and it may also depend on an anomaly of organization. Naegele, who gave this disease its name, claims that it exists previous to birth. Whatever may be the cause, it is very important that the characters of these tumours should be pointed out.

Anatomical Symptoms.—We meet with these tumours between the bones and the pericranium. The blood which constitutes them is half fluid, half solid. Sometimes the surface of the bone is slightly eroded. Generally the cephalæmatoma occurs in the form of a

colourless, painless, circumscribed, fluctuating or resisting tumour, and is especially apparent from the first to the fourth or fifth day after birth; sometimes it exists at the time of birth. These tumours are seated upon the parietal bones, especially on the right one, on the occiput, or the temporal region. Naegele saw one of these tumours on each parietal bone of the same patient. At the commencement, this tumour is soft to the touch; we may depress the top of it with the finger, and touch the bone on which it rests. A hard circle or a kind of ring sometimes exists at the circumference of the tumour, which may lead us to believe that the external plate of the bone is destroyed. Sometimes, but rarely, a movement of pulsation may be detected, but in the greater number of cases it is wanting.

Diagnosis.—We must avoid confounding cephalæmatoma with other tumours. It is developed in the bones, while encephalocele is met with in the sutures, and is formed by the substance of the cerebrum or cerebellum. The tumour has pulsations analogous to those of the brain, and may be reduced. The pulsation, which is very rare and scarcely appreciable in cephalæmatoma, is quite different from the regular and always perceptible movement of encephalocele. We cannot confound cephalæmatoma with pneumatocele of the cranium, described recently by Dr. Thomas, of Tours, which is a gaseous elastic tumour. Erectile tumours might be confounded with cephalæmatoma, but they change colour on pressure, and there are movements of expansion, and vessels more or less marked on their surface. Wens are distinguished by their colour and mobility in all directions, and an œdematous tumour produced by a serosanguinolent infiltration is very easily diagnosticated from cephalæmatoma.

Left to itself, this affection is not of a serious character; it generally terminates by resolution, but is a longer time in disappearing than a simple superficial infiltration under the hairy scalp. When patients die of other diseases, and we have the opportunity to dissect these tumours, we find the same alterations as in blood swellings, but they are usually seated under the aponeurosis or on the pericranium; and then sometimes the surface of bone is found to be rugose. A projecting edge of bone is noticed around the affected point, and it is this edge which is perceptible under the fingers during life. These tumours are doughy to the touch and formed of coagulated blood.

The *treatment* consists at first of simple revellents, lead-water, camphorated brandy, and water. Generally, at the end of several days, the tumour disappears; but if such is not the case, we derive very good results from puncture with a lancet. Sometimes there is hemorrhage, and the tumour may give way and not return. If it reappears, as sometimes happens, we repeat the puncture once or even twice, and there is always more or less discharge of blood. Slight compression usually suffices, after the puncture, to bring this affection to an end.

CHAPTER XXXVI.

HYPOSPADIAS AND EPISPADIAS.

HYPOSPADIAS is a malformation of the canal of the urethra observed in some new-born children of the masculine sex. There are several varieties of this affection.

1. *Hypospadias of the Base of the Glans.*—This is the most common form, and the orifice of the canal of the urethra, in place of being at the summit of the glans, is found at its base, at the place where the frænum is attached. In such cases, which are generally considered as obstacles to generation, we have in several instances established the fact that men affected with this form of hypospadias could have children. We have even seen two little brothers, suffering from hypospadias, who were the children of a father like themselves hypospadiac. There is sometimes a very small orifice at the top of the glans, but the principal opening of the canal is found at the spot referred to, and this is what is quite commonly observed. In such a case, the stream of urine branches off, and is discharged chiefly through the orifice at the base of the glans. In the majority of cases there is only one opening, that just mentioned. In this last case there is a very narrow orifice, analogous to the openings of the puncta lacrymalia; at other times it is much larger, and enables us to introduce a child's catheter.

In this malformation, after having attempted, as others have done, to restore the meatus urinarius to the top of the glans to

its usual location, either by making a puncture by means of a trocar, or by an incision from the base of the glans, where the meatus urinarius exists, to the summit of the glans, we have never succeeded, because the portion of the canal which we wished to establish artificially would have a tendency always to become obliterated, and because the orifice which we have freshened, and endeavoured to close up, would always be kept open and only be closed momentarily, to open afresh, in spite of the continued use of catheters. We have also, after several attempts, renounced an operation for the restoration of the canal, in which we have very often failed.

When the meatus urinarius is situated at the base of the glans, we content ourselves with making an incision and enlarging it towards the upper part of the glans. For this little operation, which is attended with difficulties, when the orifice is capillary, and only allows of the introduction of an Anel's stylet, we derive advantage from the use of a small narrow bistoury, slightly curved, and terminated by a small Anel's stylet sufficiently delicate to penetrate the meatus urinarius. In this manner we divide the contraction, but always directing the edge as much as possible towards the summit of the glans, so as to carry the incision towards the normal position of the meatus urinarius. This operation would be useless unless the patient afterwards wears, and for quite a period, the end of a catheter, introduced only to the depth of an inch and a quarter to an inch and a half into the canal, to maintain for a long time the dilatation of the orifice, which has just been enlarged. This end of a catheter or bougie should be furnished at its outer extremity with a wax button, which prevents it from penetrating further than we wish. We may accustom the child's parents to introduce this dilating body a quarter of an hour each day, and it is only on condition that we do so for at least one or two months in succession, that we prevent contraction of the urinary meatus from resulting.

2. *Hypospadias of the Base of the Penis and the Perineum.*—These two forms differ from the preceding; in the former the lesion is opposite the anterior part of the scrotum, in the latter behind it, in more or less proximity to the anus. We find among authors several methods and operative procedures for these two forms of hypospadias, which have not generally been attended with success. Some of these we have attempted, and must acknowledge that we have

failed in them; so that, in such cases, we generally refrain from operating.

Epispadias.—This deformity is, like hypospadias, most generally a malformation consisting in an opening, of greater or less extent, of the canal of the urethra, but at its upper part. Sometimes there exists, at the upper portion of the penis, a solution of continuity surrounding the canal of the urethra. This is often the result of a wound, but the form especially met with, more rarely, however, than hypospadias, is a cleft of the canal of the urethra, of greater or less extent, on the dorsal surface of the penis, a malformation which sometimes exists without extroversion of the bladder, but is often accompanied with this last-mentioned anomaly. In such cases surgery has most generally failed, and if we attempt to pare the edges of the cleft, afterwards uniting the divided portions of the canal over a catheter placed in the urethra, it is still one of those operations which may be attempted without any great hope of success. It has not succeeded in our hands, and we should not again venture to undertake these operations except upon the solicitation of the parents.

When the epispadias, which usually stops at the pubis and consequently at the neck of the bladder, is complicated with extroversion or exstrophy of the bladder, the malformation is still more serious. This anomaly is characterized by a tumour situated over the pubes, with or without separation of those bones. It presents a mucous surface formed by the exposed posterior portion of the bladder. At the bottom of this tumour we distinguish the openings of the ureters, and sometimes at the bottom of the central groove in man the fossa navicularis and verumontanum, and on each side the orifices of the ejaculatory ducts. In the circumference of the whole tumour, the mucous membrane of the bladder is confounded with the skin of the abdomen. The genital organs in man exist; in woman we have often discovered the absence of sexual organs, or else they present anomalies. Such a malformation produces, as we may readily understand, very painful functional troubles.

Until these later days, surgeons restricted themselves to advising the use of bandages, and of apparatus to guide the flow of the urine, to avoid irritating the skin of the neighboring parts. More recently Gerdy at first proposed to pare the edges of the skin, and afterwards unite them by sutures. Roux of Toulon, Nélaton, and Richard had the idea of performing an autoplastic operation, by taking the flaps of the skin from the anterior portion of the abdo-

men, to form the anterior wall of the bladder, and to make also walls for the canal of the urethra, divided with the skin, and a scrotum.

These experimental operations, very painful in the execution and very difficult, have rarely been performed, and have sometimes been followed by death or incomplete results. They do not appear to us worthy of our advocacy, and we can only say that they are not dictated by sound surgery.

CHAPTER XXXVII.

RANULA.

RANULA, in children as well as in adults, is characterized by a tumour of varying volume, fluctuating, and transparent, seated under the tongue or else in its vicinity. It is found, on anatomical examination, to be formed by a delicate transparent covering, opaque at several points, sometimes presenting several small cysts united together, some of them more developed than others—true mucous cysts. In the interior we find a viscous fluid, which is sometimes purulent. The tumour is over the course of Wharton's duct, usually communicating with it. At other times there is a cyst on the outside of the canal. Breschet found these cysts in the new-born, and we have seen them in children of a year or two of age or older.

The *causes* of ranula or grenouillette are the distension of the ducts of the sublingual salivary glands. The saliva distends the ducts, becomes diffused under the surrounding cellular tissue, and a cyst is formed. The *symptoms* are, a tumour of greater or less volume situated beneath the tongue, sometimes on one side only, at other times on both sides. There is then a double ranula, having the appearance of the abdomen of a frog, from which it derives its name. Ranula is superficial, beneath the buccal mucous membrane, and in contact with the sublingual gland. There is fluctuation, sometimes transparency, the tongue is elevated, and speech is more or less impeded. Left to itself, it sometimes increases very slowly in size, and may then attain the dimensions of a small nut, and salivation will be quite abundant. The tumour causes a prominence,

and has a tendency to escape from the mouth, when the tongue is raised. At other times, instead of occupying the sublingual gland, it exists in the submaxillary gland, and has its seat in the canal of Wharton. It then lies in the submaxillary region, in such a manner that it is not seen so much under the tongue, but more deeply situated beneath the aponeurosis. Under such circumstances, the ranula is not at all of a superficial character. This latter form is met with in adults rather than in children.

Ranula is an affection of but little gravity, which may become inflamed and be spontaneously cured, but in most cases it may remain stationary. Superficial ranula is less serious than that attacking the submaxillary gland; we have observed the former most frequently in children.

Treatment.—We usually have recourse to an operation for the cure of this disease, either incision, dilatation, excision, or the seton. The latter was proposed by Physick, and has been advocated for many years by Prof. Longier. Having employed incision and the peculiar button advised by Dupuytren to maintain a fistulous opening without success, we have decided, in adults and children, to use the seton, made of three or four silk threads, which are passed from before backwards through the largest diameter of the tumour. We secure it by means of two knots, and we leave it in the mouth for at least a month. Generally, this method has been of service in children, and if we have sometimes had a recurrence, we have introduced a fresh seton, which we have left for a long time. We may quite easily perform excision and cauterization with nitrate of silver. As for iodine injections, we have not employed them; and we may say the same in regard to the removal of a flap of the mucous membrane, as suggested by M. Jobert, who, after having exposed the cyst, removes it and unites the flap by means of stitches. The complications of this difficult and especially long operation in children induce us to prefer the seton or excision with cauterization, two procedures which have given us good results.

CHAPTER XXXVIII.

INFLAMMATION OF THE BREASTS.

INFLAMMATION of the breasts, in children, exhibits itself in both sexes and at different ages.

1. *In the New-born.*—The breast of very young children sometimes presents an engorgement to which the name *milky* has been applied, and which often coincides with the appearance of the milk in the mother. The *symptoms* are very evident; swelling of the mammary gland, sensibility to the touch, sometimes redness of the skin, and the oozing of a true milky fluid through the nipple when the gland is pressed upon. M. Donné and all those who have taken up milk as a study, have discovered, on examination by means of chemical reagents, all the elements of milk. Sometimes, but very rarely, these engorgements have been found to terminate in abscess; pus may be formed, and the necessity arise for the surgeon to open it. In robust and healthy children, the abscess once opened, the cure is rapid; while in those that are weakly the abscess may ulcerate and continue to suppurate for some time. Generally, on the contrary, these engorgements terminate by resolution. Emollients, resolvents, belladonna ointment, poultices of potato starch, and lead-water are the remedies to be employed.

2. *In Children at the Age of Puberty.*—Towards the age of twelve or fifteen years in little girls, and from fifteen to sixteen in boys, we sometimes notice a mammary engorgement. This is a prelude to puberty in the boy as it is in the girl. The swelling is either acute or chronic. In the former inflammatory symptoms accompany it, such as heat, pain, sensibility, and sometimes abscess; baths and local emollients are indicated. In the latter there are no symptoms of inflammation, the tumour is more or less hard, and without pain on pressure. We may apply either wadding or wool, and also, as means of cure, dissolvents—ioduretted ointment especially.

If an abscess forms, we must open it; but in the majority of cases

in little girls these engorgements promptly cease to be painful, and we soon discover that they are connected with the normal development of the mammary gland, which gradually increases until it attains its normal condition.

CHAPTER XXXIX.

OSTEITIS.

INFLAMMATION of a bone, to which the name osteitis is applied, is often met with in children, and may attack all the bones of the skeleton.

Anatomical Characters.—An inflamed bone, like one that is fractured, or through which amputation has been performed, when examined in an autopsy at the end of fifteen days from the accident, presents the following alterations. The periosteum of the portion of injured bone is easily detached, and the latter is found to have preserved its polish and its consistence, but we notice little red spots, varying in prominence and in number, and the surface has a rosy tint. If we cut the layers of bone longitudinally, penetrating it more or less deeply, we see notches in which are vessels more developed than in the normal condition. If we saw the bone transversely, we discover a number of rounded orifices, which are the openings of vascular canals more or less gorged with blood and serum.

According to Gerdy, when we observe the enlargement of the vascular orifices, and at the same time the affected portion of bone has lost its weight and has become more friable, we have what is called by the French *ostéite raréfiante.* We have often noticed in children this form of alteration. When we meet with dilatation of the vessels, but with a compact and hard condition, we have *ostéite condensante;* and this is the variety of the disease we have especially found in old people, when we were connected with the surgical service of Bicêtre. In cases of *ostéite ulcérante,* the bony tissue is softened, and very easily cut with the scalpel; it appears to be spongy, and small particles of bone, in the form of little splinters, are bathed by the pus and are crushed or become readily detached.

These alterations are much more easily recognized on the spongy extremities of the bones; they are very perceptible in the bones of children, for, as a general rule, the osseous tissue is much more vascular in them than in adults. We have observed in the former a variety of osteitis, pointed out by Gerdy, of the shape of a bulb or a radish, seen on the fingers of scrofulous subjects. We have also found this form of osteitis to terminate in the discharge of a true sequestrum.

Causes.—Osteitis is generally developed under the influence of local causes, as contusions, wounds, or division of a bone in amputation; but we also see it occurring in scrofulous children, who frequently suffer from an inflammatory swelling of the bones or of their periosteum only. Hence we say that a scrofulous constitution may be the cause of osteitis, as syphilis and gout may be of a specific osteitis. Whatever its cause may be, the disease generally offers in children a certain train of symptoms.

Symptoms.—We find in the tract of a bone pain, increased on pressure, increase of volume, and heat over a more or less circumscribed region. These symptoms may exist with simple periosteitis, or with osteomyelitis, or inflammation of the marrow and its covering. The diagnosis can only be well made out as the disease becomes more developed. Osteitis may terminate by resolution, and then the pain will gradually disappear, and the swelling also diminish, but it may often persist for a long time, as in the case of scrofulous children. Osteitis terminates in suppuration in such cases, in which we meet with extra-osseous or even intra-osseous abscesses. Abscesses in the direct vicinity of a bone may be recognized by the fluctuation, but this is not true of abscesses of the interior of the bones, in the medullary canal or in the tissue. In such cases, there is very sharp pain, with increase of the volume of the bone. The abscesses may show themselves at the affected point, and often at a distance from it, and are then congestive or symptomatic abscesses.

Osteitis may pass into a chronic state, presenting no other symptoms than increase of volume, usually without giving rise to pain; or, if at all, only at long intervals. This termination is met with in scrofula and syphilis. Finally, osteitis may end either in caries or necrosis.

Treatment.—At the commencement, in the acute state of osteitis, we may employ emollients, cataplasms, baths, and sometimes, but

rarely, apply leeches. In scrofulous children, inunction with ointment of mercury and belladonna has succeeded in our hands. Sometimes the application of elastic collodion is sufficient to allay it. In scrofulous children, these local agents answer our purpose. As a palliative, we must also employ an anti-scrofulous treatment, provided the osteitis is not due wholly to a traumatic cause.

CHAPTER XL.

CARIES.

CARIES is an alteration of the osseous tissue characterized by a greater or less amount of vascularization, with friability and softening of the tissue, presenting fungosities and granulations developed and bathed in a sanious and purulent humour.

Causes.—In children, external violence and scrofula are the causes. We have seen hereditary syphilis also give rise in them to caries of the bones of the face, and of the bones of the nose and the vault of the palate. We have not, in such cases, detected tubercles as a complication of this form of caries. We cannot say that masturbation is positively a cause of this affection, as we have no positive facts to support such an opinion, and we have not absolutely seen children who were very much addicted to this practice attacked with caries of the vertebræ, but we have met with cases of vertebral caries, requiring the patient to remain in bed, which have led to masturbation.

Physiological Alterations.—These anatomical lesions are observed in the spongy portions of the bones; the substance of this tissue has its cellules enlarged and dilated, and is more vascular, rarefied, light, softened, friable under pressure of the finger, reddish, violet, and impregnated with sanious blood or fetid pus having a specific odour.

Symptoms.—In children, the beginning of the disease often remains unperceived; there is at first an indolent swelling, and for a while the little patients do not complain of pain, though after some time it gradually becomes more acute and continuous. If the caries is developed in a bone that is subcutaneous, we recognize it by the swelling being sometimes not well circumscribed, hard

and painful on pressure. The neighbouring soft parts gradually become inflamed, and abscesses are developed in the affected part; or further off, at variable distances, cold abscesses form, which, in course of time, open. These openings become enlarged, and sanious pus is discharged; sometimes small pieces of bone brought away by the pus appear in the midst of the suppuration; fistulas are established, and, by introducing through the openings a resisting metallic stylet, we may feel a hard, rugose, irregular, sharp surface. If we push the stylet, we discover that it penetrates a tissue that is diseased, soft and yet rugose, and at the same time a variable quantity of blood is discharged and sometimes small portions of bone.

It is evident that, when caries attacks the vicinity of a joint, symptoms of arthritis will become developed. If it occurs in the neighbourhood of the great thoracic or abdominal cavities, symptoms are noticed, which are developed in the viscera contained in them. If caries is seated in the bones of the cranium, it produces cerebral symptoms. Finally, it may be the cause of paralysis of the upper or lower extremities, if it attacks different points in the vertebral column.

The progress of this disease is sometimes very slow. If it occupies a circumscribed situation, it may terminate by the elimination of small particles or minute fragments, and the detached portion be covered with granulations and a cicatrix. If it involves a considerable extent of bone, it may induce grave symptoms, the loss of a portion of the foot, the hand, etc. Sometimes it may give rise to an abundant fetid suppuration, slow fever, marasmus, and death.

Diagnosis.—If this is sometimes difficult at the commencement, we cannot make any mistake in the advanced stages of caries, especially when the abscesses are opened, and we are enabled to make an exploration with a metallic stylet. Caries is always more or less grave, according to the extent involved. It is less serious if superficial, but it is always dangerous if developed very deeply in the vertebral column, in the bones of the pelvis, or those of the foot or the hand, as we very often meet with it in scrofulous children.

Treatment.—This serious disease requires a general treatment, when the cause which gives rise to it depends on a constitutional affection. Thus, scrofula and syphilis should be treated, when they

are the cause of the caries. We must also employ a local treatment, especially if the disease has a traumatic cause. Pain, for instance, may be sometimes, but rarely, overcome, by the application of leeches, emollients, fomentations, poultices, and inunction with dissolvent ointments, as mercurial or iodine ointment; but these remedies are only palliative. For caries in children, we have returned to the use of the cautery, heated needles, and transcurrent cauterization, to arrest the progress of the disease; but these methods have not given us good results.

When abscesses are developed, we must open them, even if they are of the congestive form. When the abscesses remain open, we derive benefit from the application of tonic solutions, such as infusion of walnut leaves, aromatic wine, or solution of iodine, and even from injection of one part of tincture of iodine to two parts of simple water. These injections may be successfully practised in congestive abscesses at a distance from the affected bone, and in abscesses symptomatic of caries of the vertebræ, or of coxalgia. When the carious spot is superficial, we may sometimes carry the red-hot iron over the diseased bone, and thus produce a sequestrum, which may become detached. The caries may be sometimes so extensive and so deep, occupying several bones, as in the hand or the foot, that we are often obliged to perform either extraction or resection, and sometimes amputation, when the local disease produces general symptoms, which so greatly debilitate the patient, that we cannot wait for the separation of the diseased part and its elimination by the efforts of nature alone.

CHAPTER XLI.

NECROSIS.

NECROSIS—partial or entire mortification of a bone—is often seen in children, and may result from either traumatic or internal causes. Wounds, injuries, and especially scrofula, sometimes syphilis, are the causes of this disease during childhood. The vascular arrangement of the periosteum and the medullary membrane, which is very remarkable in young people, much more than in adults, will explain how necrosis occurs from lesions of each of

these structures, and of the bone itself. The latter, deprived of its periosteum or its medullary membrane from any cause, only living by the vascularity of these membranes, must become mortified, and, being deprived of the circulation, comes to form a dead portion, called a sequestrum, which tends to become detached, as a slough is separated from the soft parts. The sequestrum presents considerable differences: sometimes it is very small and very circumscribed, and at other times occupies a large portion or the whole extent of a bone; it is recognized in childhood, as in adults and old people, by its tarnished or dull white colour; and percussion gives a clearer sound, as if cracked. The sequestrum is variable in appearance, sometimes in the form of delicate irregular plates, at other times in angular fragments representing a portion of bone involving a greater or less extent, and when this sequestrum is of long standing it loses in time the dimensions it formerly had. If a sequestrum is treated by chemical agents, we find that it has lost its organic tissue; left to itself, the elimination is effected in children as in adults, perhaps more promptly in the former than at other periods of life.

In young subjects we recognize three stages: exfoliation, elimination, and absorption.

1. *Exfoliation*, or the expulsion of small, more or less circumscribed bony plates, is developed either spontaneously as the result of an abscess from a general cause, or after a wound or contusion, or an erosion of the skin over a bone that is more or less subcutaneous, as on the skull, the face, the jaw, the tibia, etc. There is at first inflammation of varying duration, sometimes very acute, at other times slow; and an abscess is formed and opens spontaneously, or is opened by the hand of the surgeon. The mortified portion of bone is uncovered, and generally becomes detached in mass in the form of a plate or small fragment, sometimes of the most minute kind. At other times, if of small extent, it may be absorbed or escape the eye of the observer. The periosteum which covered this bony portion has been destroyed, but the periosteum which exists around it on the sound portion of bone remains intact, and soon extends and fills up the denuded part.

2. *Elimination.*—It is not always an extensive lamella that is detached, but a portion of necrosed bone of variable size; it is the true sequestrum, which cannot be discharged by exfoliation, but by total or partial elimination. This bone, the vitality of which

is lost, remains more or less enveloped in its periosteum; the other, which is inflamed, is developed slowly, and moulded on the diseased portion with very little definite shape, and constitutes the new bone. The sequestrum is enveloped in mass by the bone which offers, at certain points, openings of different shapes, narrow, circular, and oval, through which the necrosed portion may be felt and seen. This constitutes an invaginated sequestrum which floats in pus, and is sometimes more or less in contact with the tubercular substance which we have at times met with in the extremities of bones or chiefly in the short bones. Left to itself, this portion surrounded with pus tends to become gradually detached from the healthy portions, and it may be separated by the efforts of nature alone, after long suppurations which discharge through fistulas made in the bone and in the skin, in the course of the disease. Time and nature, constantly aiding the escape of this portion of diseased structure, sometimes suffice to produce its expulsion.

3. *Absorption* is a slow termination by the dissolution of the sequestrum; it is rarely met with, but we have seen the latter waste away and be destroyed gradually in an insensible manner, becoming reduced to the most simple expression.

The *causes* of all these disorders in children are, as we have said, traumatic lesions, and, in the majority of cases, scrofula. The *symptoms* are at first tumefaction, swelling without great pain in the situation of the necrosis, and, in some cases, sensibility and erysipelatous redness, but usually inflammation of slow progress. When we have extensive necrosis to deal with, as in the jaw or the limbs, there may be acute, very intense inflammation, with rapid tumefaction, fever, and the formation of deep abscesses, which are sometimes sub-periosteal. In such cases there may be general disturbance, delirium, in fact all the phenomena of phlegmonous inflammation. When the necrosis is of small extent, circumscribed and superficial, there is only a local trouble without general reaction; an abscess occurs with a spontaneous opening, and a fistula. In extensive necrosis, however, the general symptoms are grave, and the suppuration abundant and deeply situated. If the child does not sink under these symptoms, considerable time elapses before the pus makes its appearance on the surface, and often not until after becoming diffused, as in cases of congestive abscess of the vertebral column and of the pelvis. Frequently the abscess does

not open till after some months, and forms inexhaustible fistulas up to the time of the elimination of the necrosed portions of bone.

Prognosis.—As a general rule, all things being otherwise equal, the prognosis is more or less serious, and the disease usually of long duration. If it is not of marked intensity, and but a small extent of bone is involved, the disease may terminate in fistula, and the escape of sequestra of small size; but, if it implicates a large portion or the whole of a bone, it will most likely prove fatal. In any event we must be very cautious in our prognosis, and always bear in mind that the smallest portions of necrosed bone often take months to work their way out, and suppuration ceases and the fistulas become closed only when these mortified parts are removed. Children are generally cured of circumscribed necrosis, and, even when this is of considerable extent, it quite frequently happens that they are finally cured if they pass the period of suppuration without being too much exhausted.

Its progress, as may be seen from a glance at the symptoms, is most frequently slow, but is perhaps a little more rapid if the case is one of necrosis from traumatic causes. When we have to treat necrosis due to a scrofulous cause,—and these unhappily are the cases most often met with,—this is not the case. We have seen them persist five or six years or more.

Situation.—Necrosis, which is of very common occurrence in young people, is observed in all the bones, long, short, and flat, independently of the form of the disease developed on the alveolar border. In children who are met with in places where they manufacture sulphur, we find the upper or lower jaws necrosed. Under the influence of a scrofulous constitution, it sometimes involves only a very small surface, the border of an alveolus, for example. At other times, and generally after inflammation of the gums, and more or less decided stomatitis, often of a gangrenous nature, we find the necrosis affecting the alveolar border in one portion, and sometimes nearly the whole of the upper or lower jaw. The enormous sequestra which follow these necroses, for a very long time retained, and surrounded with abundant suppuration, give an intensely fetid character to the mouth, and produce fever and all the symptoms of absorption. They are expelled by the efforts of nature or are extracted by the surgeon. We have had occasion to remove sequestra several times, representing the upper or lower jaw almost in its entire extent. Children are cured rapidly, and as if by enchantment, after the

extraction of these diseased portions. New jaws, formed by the development of the periosteum, most generally without teeth, may replace the old ones.

We see in children a number of partial necroses, usually of the bones of the face, the borders of the orbits to a greater or less extent, the proper bones of the nose, etc. and of the vault of the palate, as in syphilis. All these forms of necrosis terminate generally by exfoliation; after having been attended at first with swelling, sometimes with abscess, afterwards with fistulas, which persist, and require time, and the use of general rather than local remedies. They usually terminate by a cicatrix of the soft parts adherent to the portion of diseased bone. Frequently, these adhesions cease with time, and the skin becomes movable.

Necroses of the ribs or of the sternum are rare; those of the vertebræ are unfortunately very common, and, so to speak, a disease peculiar to childhood, and are sometimes tuberculous. We have but rarely discovered the true tubercular substance in the vertebræ.

Necrosis very frequently occurs in the limbs and in the long bones, as the humerus, radius, ulna, femur, tibia, and fibula. We find in these different cases in children more or less circumscribed engorgements at a point on one of the bones, which progress with extreme slowness, and are only accompanied with dull pain. At other times, there are all the symptoms of a profound phlegmonous inflammation, with fever and even delirium. We have met with this several times in periostitis of the femur, which begins with fever and delirium, and often runs its course very rapidly, speedily terminating in deep abscesses. These throw the children into a grave condition, that can never be checked by the most active antiphlogistic treatment, which is more injurious than useful. In such cases, applications of the mercurial ointment around the affected limb, and, internally, the administration of the preparations of cinchona, are the remedies to be employed. Finally, when the pus is formed, even before there is very decided fluctuation, it will be advisable to make free incisions, which give relief even if there should be no such collections of pus present.

If the indication is to subject the child to active surgical treatment, the object will be to quiet acute pain, and the general symptoms that complicate the local affection; but after such active treatment, we have only to employ expectant surgery, such as emollients,

baths, poultices, sometimes drainage, emollient and detersive injections, and then simple dressings. Fistulas become established, and through them may be felt, sooner or later, the sequestrum, which at first is not at all movable, and only becomes so in time. We always find that the more extensive the sequestrum the greater length of time it requires to become movable. In a child ten or eleven years of age, we found a sequestrum occupying the whole of the body of the femur, only movable seven years after the commencement of the disease, and we successfully extracted it.

Necrosis of the short bones is also met with in children, chiefly of the phalanges of the fingers, and then the latter have a peculiar shape, and the swelling is fusiform, sometimes in the form of a radish. In this kind of necrosis, the children may lose one or several phalanges. The bones of the foot may also be attacked, as the astragalus or os calcis, the sequestra from which are only movable several months and even several years afterwards.

Treatment.—In children, as in the majority of cases in which necrosis is developed under the influence of a scrofulous or lymphatic constitution, the antiscrofulous treatment should be resorted to from the commencement to the end of the disease. It should not be modified or suspended except when accompanied with violent inflammations and fevers, which must be combated by local and general means. Otherwise, and when the necrosis remains stationary, we must employ locally tonic lotions and general tonic baths; in certain cases, emollients alone, and waiting for the efforts of nature, which tend either sometimes to the absorption of the sequestrum, or, most frequently, to its expulsion and to the formation of a new portion of bone to replace the old.

The duty of the surgeon is limited to waiting for the mobility of the sequestrum. During this time, he may, nevertheless, keep a watch over the patient, and, especially when a long bone of the limbs is involved, endeavour by position or bandages to prevent the newly-formed bone, which for a long time is of a soft consistence, from being curved, as sometimes occurs either in the upper or lower limbs. Immobility of the limb is absolutely necessary in all cases in which the sequestrum is of small extent, for movement may cause inflammation or erysipelas. We must watch these intercurrent affections, which will demand different treatment, according to the nature of the case. Usually we must be satisfied, for a long time, to exercise a good deal of caution in regard to the moving of

the sequestra, when situated in such a way as to be capable of extraction. There are some cases in which we must abstain from touching them, as in necrosis of the vertebræ, for example. But, when after more or less time he can be assured, by sounding the fistulous spots, that the sequestrum is movable in different directions, the surgeon should interfere, and either seize the portions which can be extracted with the forceps, or divide the fistulous parts. Under certain circumstances, as in sequestra of the scapula, the humerus, the femur, etc., we must not only divide the soft parts, but also enlarge the openings of the new bone to extract the sequestra. We do not hesitate in these cases, in our little patients, to trepan them, using a gouge and mallet to facilitate such extractions. This we have done in several instances. When we have to detach the sequestrum, we may be compelled to divide it before extracting it.

After these operations, which are often very laborious and very long, we may apply very light dressings, and gently tampon if there be hemorrhage, afterwards sprinkling carefully with cold water. It is also beneficial, after these operations, to support afresh the limb operated on in its normal position. We must carefully watch the cicatrization, and make it as regular as possible. We must not forget that, in the limbs, the bones of the new formation are not at first solid, and that it is prudent not to allow of movements, walking especially, for some time after the extraction of the sequestrum; otherwise we may have the limbs remaining curved, and not properly shaped.

CHAPTER XLII.

OCULO-PALPEBRAL CONJUNCTIVITIS.

INFLAMMATION of the oculo-palpebral conjunctiva is as frequent in children as in adults. This disease is often met with at birth, and is then known under the name of ophthalmia of the new-born. Of this disease we have already spoken. It is also observed in children at all ages. Sometimes the ocular conjunctiva is alone affected; at other times the disease extends to the eyelids, and may invade the other parts of the eye, and constitute as many

special diseases,—keratitis, iritis, etc.,—which are complications of the conjunctivitis.

Causes.—In children, as in adults, the causes may be either external or internal. The external causes are draughts of air, wounds, punctures, burns, turning in of the lashes, the presence of foreign bodies of all kinds, prolonged fatigue of the eye, especially a bright light, etc. The chief internal cause is often in childhood the scrofulous taint, giving rise to scrofulous ophthalmia. This cause is often the only one that can be discovered in certain children; nevertheless, in some of them, the causes are connected with other individual conditions, as rheumatism, intestinal obstruction, abrupt suppression of transpiration by cold, or certain eruptions. Sometimes the conjunctivitis appears under the influence of measles or variola, and is even a prodromic symptom of those diseases.

The symptoms are either anatomical or physiological.

Anatomical Symptoms.—We notice redness over the whole of the conjunctiva, or over a circumscribed spot, which is more or less decided according to the intensity of the inflammation, and is characterized by injected vessels, which creep in a tortuous way through the sub-mucous cellular tissue. These are, at first, visible on the inner aspect of the lids, and gradually spread to the globe of the eye, and sometimes extend even over the transparent cornea. The swelling of the mucous membrane is at first seen in a slight augmentation of thickness different from the infiltration of the submucous tissue, which is met with somewhat later. If in this pathological condition we interrogate the children, we find that they experience annoyance as if from the presence of a foreign body in the eye. At the beginning there is not yet photophobia, which occurs only when the cornea is invaded, or inflammation of the deep membranes commences. It is then no longer simple conjunctivitis, which generally lasts only ten or twelve days when it is limited, but some other disease of the eye, the duration of which is very variable.

In children suffering from affections of the skin, measles or smallpox, it is transient; but, when connected with a scrofulous taint, it may remain simple but tenacious. In this condition, however, we must fear, as in ophthalmia of the new-born, the complication of conjunctivitis with pustules, granulations, chemosis, keratitis, iritis, internal ophthalmia, purulent dissolution of the eye, and atrophy of the eyeball. All these diseases should be studied separately;

and, in this article, after having examined simple conjunctivitis, we will confine ourselves to the description of the most common complications.

Physiological Symptoms.—Simple conjunctivitis does not usually present very grave general symptoms: there is only sensibility to a bright light, and rather soreness than great pain; but, as soon as complications arise, the local disease may be accompanied with fever, loss of appetite, constipation, and very acute pain. The progress of the disease is variable according to its nature. It may terminate in ten or twelve days if a simple uncomplicated case, but if otherwise it may be retarded. We should then be very reserved in our prognosis, for conjunctivitis may assume a chronic form, with spots upon the cornea, ulcerations, etc.

Treatment.—This may be local or general, and vary according to the complications. To institute a local treatment, we must first examine into the condition of the eye, sometimes a difficult task with children. For this purpose, we must reverse the lids or raise them with elevators. It is important sometimes to make the examination during sleep, as this will prevent the child from struggling. When simple conjunctivitis is occasioned by a draught of air, washing with cool water may generally be the sole treatment required; and this is true also of that form of the disease which is produced by the introduction of a foreign body into the eye, sometimes after its extraction if it can be removed. Thus, grains of dust or metal filings should be first of all sought for carefully by reversing the lids, using the magnifying glass, the ophthalmoscope, etc. These foreign bodies, which we have several times found in the eyes of children, may be extracted, when they are movable, by the aid of a simple brush or a curette. Others, which are incrusted, can only be extracted by means of the point of a cataract needle, in cases in which a steel or other filing is fixed upon the cornea, for example, or the sclerotic coat. In these various cases, it may suffice, the extraction being made, to use lotions, to apply cool water, and to keep patients away from too bright a light.

In conjunctivitis produced by irritating liquids, we have derived benefit from irrigations of simple water, made every three hours, either by means of a funnel or an irrigator. For such applications we must employ, with either apparatus, a very small canula, that the jet of water may be made quite delicate. But if the conjunctivitis from a traumatic cause is accompanied with intense in-

flammation, with very great injection and violent pain, as in some cases where it has been impossible to extract the foreign body (for often surgical prudence demands that it shall be left alone, as when a shot is buried in the eye), we have always found it best to adopt an energetic antiphlogistic treatment, associating with it resolvent and calmative remedies. We must say in advance, however, that these means are especially attended with successful results, when the conjunctivitis is not accompanied with the presence of foreign bodies which we have been unable to extract. The treatment consists in local depletion by leeches behind the ear or to the temple, sometimes by cups; we rarely resort to general bloodletting, at least in children. We must often give purgatives, then apply resolvent and calmative ointments around the eye, the mercurial ointment, belladonna, or atropia in solution dropped on the eyeball.

When the conjunctivitis is produced by internal causes, and chiefly by the scrofulous taint in children—and this is a very frequent cause—we must have recourse to antiscrofulous remedies, which should always constitute the internal treatment, but be suspended during the progress of very intense conjunctivitis. We must, in young lymphatic children, be cautious of the use of bloodletting, and we have most frequently obtained good results from more or less astringent collyria, as those made with sulphate of zinc or nitrate of silver:—

℞. Zinci sulphat. gr. iij.
Aquæ destillat. fʒiiss. M.

Or,

℞. Argent. nitrat. gr. v–x.
Aquæ destillat. fʒiiss. M.

Revellents to the lower extremity, in the shape of foot-baths of salt water or mustard foot-baths, often give good results. We have not used the concentrated solution of nitrate of silver, applied in light layers on the external surface of the lids, after the manner of M. Serres d' Elzès, who borrowed it from the German oculists; but it has the advantage of not being painful for children, as collyria in the eyes are. We should also employ belladonna in the manner already indicated in traumatic conjunctivitis. Purgatives are of the greatest necessity in many cases; castor oil, solution of citrate of magnesia, and small doses of calomel for the youngest children, have generally rendered us good service. By means of

these different remedies, we often see the disease terminating by resolution more or less rapidly.

Certain very common complications induce us to adopt other modes of treatment. Thus, in chemosis—in other words, infiltration of the sub-mucous cellular tissue in the form of a circular ring, soft and slightly painful around the cornea—which may extend over the whole eyeball, giving the cornea a sunken appearance, an energetic treatment must be resorted to, consisting in deep scarifications over the ring, either with a lancet, or, better still, with scissors and forceps. After incising it, we apply lotions of warm water, and after six or eight such applications the chemosis will be found to disappear. A few purgatives may be needed to put an end to this complication, which very often involves the cornea, but this treatment is not always sufficient. We must carry the pencil of nitrate of silver over the mucous ring, and then bathe the affected eye with cold water to which hydrochloric acid has been added, in the proportion of twenty drops to half a pint of water; this mixture being used as a wash for the eye every two or three hours during the first twenty-four. Blisters behind the ears, which were formerly advised, have not succeeded in our hands; they appeared to excite unnecessary irritation.

When the conjunctivitis is complicated with pustules, the patient complains of having a foreign body in the eye. If we examine it carefully, we discover, in lymphatic children more frequently than in others, a certain number of vessels forming on the eyeball a triangular group, the base of which comes from the oculo-palpebral cul-de-sac. These vessels, when united, form the summit of the triangle, which passes as far as the border of the cornea, where there is a pustule, generally of the volume of a millet seed or a little larger. Sometimes this pustule is flattened, and bright yellow; at other times it is purulent, and more or less prominent. It sometimes exists alone, or there may be two, three, or four others, always around the cornea, having their triangles of vessels arranged in the same manner. As long as they are confined to the conjunctiva of the ball, the case is not of much gravity; but if they invade the cornea, ulceration may occur at the points corresponding to them. Such cases are frequently accompanied with photophobia. When these pustules do not involve the cornea, they may be absorbed or leave a slight ulceration, which terminates by resolution conjointly with the vascular injection.

This complication may be treated with lotions of cold water, or applications of compresses steeped in water, and these often answer the purpose. I have found advantage result from touching the pustules very gently and very rapidly at the commencement, with the point of a pencil of nitrate of silver or the lapis divinus, and especially by carrying it over the vessels which form the point of the triangle. But we may generally derive benefit from, and should chiefly content ourselves with, simple water or the borax collyrium of M. Desmarres:—

℞. Sodæ borat. gr. iij.
Aquæ lauro-cerasi destillat. f℥vj.
Aquæ f℥iv. M.

The child should be kept in an apartment dimly lighted. If there be photophobia, advantage will be derived from dropping into the eye, two or three times daily, a drop of a mixture containing a grain and a half of the neutral sulphate of atropia to half an ounce of distilled water. We must also persevere in the use of purgatives, and, for the time, suspend the use of tonic or antiscrofulous remedies.

Conjunctivitis may be complicated with granulations, with the secretion of a puriform fluid, and the development on the inner surface of the lids of a multitude of small projections like the papillæ of the tongue. Sometimes the inflammation interferes with the movement of the eyelids, and there is itching on the inflamed surfaces and chiefly towards the large angle of the eye. Gradually the redness becomes more intense, the sub-mucous cellular tissue becomes infiltrated, and the granulations increase in volume. There is an exacerbation of the symptoms in the evening and morning, and the edges of the lids are gummed together by the secretion of desiccated mucus. These granulations may terminate by resolution, but they may also be complicated with serous chemosis. They may occur in an epidemic form, and we have seen several children of the same family attacked with this affection together or successively. This has been seen in our surgical wards at the hospital, and has also been noticed in children who are taken to asylums in the different *arrondissements* of Paris.

Whatever the cause of the development of these granulations may be, cold, contagion, etc., we must chiefly rely upon light applications of the pencil of nitrate of silver, or, better still, the lapis

divinus, on the inner surface of the lids, which should be reversed, and the pencil passed gently and rapidly over them. Combined with this, may be used the slightly astringent collyrium of M. Desmarres:—

℞. Acid. tannic. pur. gr. xv.
Aquæ lauro-cerasi destillat. fʒj.
Aquæ destillat. fʒiv. M.

This should be dropped several times in the day between the eyelids. If the granular affection passes into a chronic state, we must employ a slightly stimulating ointment between the lids, such as crystallized nitrate of silver combined with fresh washed butter, or red precipitate combined with washed butter, in proper proportions.

Conjunctivitis may be complicated with ulcerations of the cornea, which are often attended with photophobia, and require the use of solution of atropia. Collyria of sulphate of zinc or nitrate of silver may be sufficient to overcome them. We have sometimes treated them successfully by touching the ulcerations very gently with the point of a pencil of nitrate of silver.

We often find on the cornea, in cases of conjunctivitis, spots, which are nothing more than the consequence of superficial keratitis, followed by effusion between the layers of the cornea, or of ulcerations that are cicatrizing. Many of these spots may be absorbed, and are consequently only a transient obstacle to vision. We have seen some of these of very large size in very young children disappear as they advanced in age. They must, however, be subjected to treatment, but of this we shall have more to say under the head of Keratitis (Chap. LII.).

CHAPTER XLIII.

TRAUMATIC LESIONS OF THE CORNEA.

Wounds of the cornea may be produced from a number of circumstances, more frequently in children than in adults. Contusions, punctures, cuts, foreign bodies, burns and perforations, are so many traumatic lesions which may be observed on the cornea. All these

wounds may be very slight and easily cured, or be very serious and involve the loss of the eye.

Contusions of the cornea are met with quite frequently in children, because they receive a cuff or a lash either in playing, as when they mount behind vehicles, or a foreign body is thrown against the eye. Under such circumstances, the cornea may be bruised or even torn; and, as a result of the contusion, the pupil may be dilated, its shape altered, vision momentarily disturbed and afterwards re-established. The cornea may be lacerated with the discharge of the fluid of the anterior chamber, which may last for several days; and there is redness of the conjunctiva covering the cornea, sometimes sanguineous suffusion of the anterior chamber. If the lesion is not very considerable, the contusion and even the laceration terminate in a favourable manner.

The treatment consists in applications of cool water; often by the single precaution of keeping the eye closed by applying over the lid compresses steeped in simple water, or lead-water with laudanum in it, the wound will become cicatrized. In some cases in which the pain and inflammation are marked, an application of leeches to the temple appears to be indicated, but we must only apply two or three of these, according to the age of the child, and only let them flow for an hour after they are detached.

Punctures and cuts of the cornea are quite frequent, but if they do not penetrate deeply into the eye and only involve the thickness of the cornea, they are of but little gravity, and tend to cicatrize under the influence of applications of cold water, and especially with the precaution of keeping the upper lid depressed without compressing it with a tight band, for the pressure does more harm than good. When the punctures or the cuts give issue to almost the whole of the humours of the eye, the case is then very serious; we must not hesitate to deplete. We must, when the wound has allowed of the discharge of the fluids, keep the child in bed on his back, and not let him turn his head either to the right or the left, for this position greatly facilitates cicatrization. If union does not take place by the first intention, there is then suppuration, which greatly compromises the safety of the eye, unless we treat the little patient energetically. We must act as we would in the gravest forms of ophthalmia, returning to bloodletting, the applications of ointment, as mercurial ointment and belladonna,

around the eye, and also employing drops of a solution of atropia, and continue the use of repeated purgatives.

Foreign bodies, which produce lesions of the cornea, give rise to different symptoms, according to the depth to which they penetrate. Generally, the indication is to extract them. Left in the wound, they produce all the gravest symptoms. For the extraction, if that be possible, we must place the child before a window, after having seated him in such a manner that an assistant holds his head firmly and raises the upper lid; then, by means of a brush or a stylet, or very fine forceps, we may relieve the child. In other cases, when the foreign bodies are encrusted in the cornea, we must use a cataract needle or a lancet; sometimes we must even incise the cornea if the foreign bodies are in the anterior chamber. The foreign body once removed, we must continue the applications of cool water, and a more or less active antiphlogistic treatment, which may be discontinued if the symptoms should justify it.

Burns of the cornea are all more or less serious, the slightest of these sometimes producing a very circumscribed and superficial wound. Others destroy the whole of the cornea, and hence we have in each case a very different prognosis. As for the treatment, whatever be the nature of the burn, washes of cold water, and applications of compresses steeped in soothing solutions may be employed. There may remain, as a result of the treatment, ulcers or fistulas of the cornea, and we may fear the occurrence of softening and gangrene; but to prevent all accidents, we must, at the commencement, resort to an energetic antiphlogistic treatment.

Perforation of the Cornea.—This accident succeeds traumatic lesions of the cornea or the various forms of ophthalmia, and especially those developed in scrofulous subjects. They are even observed at the commencement of scrofula. Perforations are noticed at the centre or the circumference of the cornea, at first in the shape of very minute depressions, like the very small head of a pin; they are sometimes developed with very great rapidity, and the perforation may make its appearance the next day, the iris sometimes making a hernia. It is of the highest importance to resist this rapid progress. We must, while using the collyrium of nitrate of silver conjointly with antiphlogistics, also employ belladonna; but, as in these cases the vitality of the iris is considerably increased, it is important to combine with it the use of ice. We therefore suggest the following treatment: keep the patient lying on his back,

with his head immovable and thrown slightly backwards; then apply over the eye, the upper lid being closed, compresses steeped in an infusion of belladonna leaves, an ounce and a half of the leaves infused in a quart of water passed through, filtered, and kept in ice. The compresses should be frequently changed; and three or four times in the day, and three or four times in the night, there should be dropped between the lids a drop of a solution of atropia, containing a grain and a half of the salt of atropia to three ounces of distilled water. We may, by this means, prevent a perforation of the cornea; if it takes place, the fluid of the anterior chamber flows out. The iris is not always carried forward producing a hernia; but if the iris is involved, we may reduce it by pressure of the lid on the eye, keeping it closed by a headband. If the iris has been involved but a short time, we will succeed, but when the hernia exists for some days, we may fear that we shall have a failure, and then we must have recourse to cauterization with ni trate of silver once or several times at a day's interval.

CHAPTER XLIV.

CHILBLAIN.

THIS affection consists in a swelling or engorgement of the subcutaneous cellular tissue, often indolent, sometimes burning and painful, having a light purplish tint. As a general rule, we meet with chilblain in children, and sometimes in old people, in the fingers, toes, nose, and ears. There are usually several of them at a time, and they are most frequently met with in weak lymphatic children.

Causes.—The lymphatic diathesis is the usual predisposing cause; cold, moisture, and bad shoes which keep the feet wet, are its exciting causes.

Symptoms.—This disease, which manifests itself towards the end of autumn or in winter, is characterized by swelling on one of the regions already referred to,—the fingers, toes, nose, or ears. There is a light purplish redness,—quite circumscribed, and disappearing on pressure of the finger, like erysipelas,—and itching,—especially when the affected part is exposed to heat,—pain on pressure, and in the movements. The violaceous tint becomes bluish, sometimes

with ulceration, the skin becomes gangrenous, and we have seen tendons, bones, and joints denuded, and even toes become detached. Sometimes this disease is complicated with erysipelas, which may invade the whole of a limb. It often happens that the chilblains, whether ulcerated or not, are complicated with angeioleucitis, either in the ham or in the groin.

Diagnosis.—Chilblain should not be confounded with erysipelas; the latter does not invade a circumscribed part, such as a phalanx. Chilblain tends to remain on the situation affected by it; erysipelas usually, on the contrary, has a tendency to travel to a greater or less distance.

Prognosis.—In the majority of cases it is favourable, for chilblain, as a general rule, has a tendency to terminate by resolution, without following the serious course we have previously pointed out; but it habitually appears in children on the return of winter.

Termination.—Chilblain nearly always diminishes in intensity, and terminates by resolution, when the mild season arrives and the cold weather is at an end; but it frequently disappears not to return until the age of puberty. This fact, which is quite general, is far from being always constant, for we still see adults attacked with chilblains. Besides, old people, who have had chilblains in their younger days, sometimes have it, which present in them the same characters as in childhood.

Treatment.—It is important that the treatment should be distinguished into prophylactic and curative. We may sometimes save children from chilblains, at first by giving tone to the constitution if it is lymphatic; all the general internal antiscrofulous remedies may modify this predisposition to chilblains, and without at all neglecting these various remedies, the treatment by tonic baths appears to us to be very beneficial, such as cold baths, sea-bathing, and sulphurous baths. Independently of these baths, which act at one and the same time on the general and local condition, we have derived good results from tonic foot-baths, such as those made with slightly warm coarse wine, or infusion of walnut leaves, or baths of soap and water, or water with the addition of camphorated brandy, lavender brandy or water, with a small quantity of Labarraque's solution of chlorinated soda. These local baths should be taken nearly cool; they will act injuriously if they are too warm. The curative treatment consists of either lotions or baths,—which may still be employed with success, when the chilblains are

severe, as when they are accompanied with heat, redness, and pain,—to be combined with the agents last mentioned as preservative remedies. Frequently, however, emollients are useful, as baths of marshmallow water or gelatinous water, and sometimes applications of emollient poultices; but if the pain is very acute, the indication is to employ them at a cool rather than a warm temperature.

When phlyctenæ are formed, and when ulcers appear, we must apply simple dressings with fenestrated linen smeared with cerate, and covered with charpie. After several days of this simple dressing, we must at once apply tonic dressings, by steeping the charpie in heavy aromatic wine or water, slightly chlorinated. If the ulcers have a grayish look, we must employ a simple digestive of a more or less stimulant character; if granulations spring up, we must repress them with nitrate of silver. Sulphurous waters at this period are often indicated, but we may sometimes modify them with simple water or bran water. We should be cautious in the use of warm water, which might soften the flesh, and do more harm than good. If there be fetor, powdered cinchona or dressings with permanganate of potash may be of service, in the proportion of two drachms and a half of that salt to four ounces of water; two spoonfuls of this solution in a glass of water in which the charpie used in the dressings may be steeped. In a word, at all periods of the disease, chilblain requires, as prophylactic or as curative treatment, the use of tonics in all forms, unless the inflammation be very intense. The ointment advised by Dr. Carreau appears to be of service at all periods of this affection:—

℞. Potassii iodid. ʒj.
Tincturæ iodinii ♏xx.
Adipis ℥j. M.

CHAPTER XLV.

TRAUMATIC DISLOCATIONS.

Traumatic dislocations, or permanent displacements abruptly produced by external violence in the articulations, are more uncommon in children than in adults, and yet we have met with all the traumatic luxations in young subjects. The most frequent are

those of the elbow and ulna at its upper portion, those of the radius at its upper part, and, separately, that of the clavicle from the humerus. We have also met with luxation of the inferior extremity of the ulna, of the first metacarpal bone, and the phalanges of the fingers. We have seen luxations of the coxo-femoral articulation, of the patella, of the toes, and of the inferior maxillary, and even of the cervical vertebræ.

All these dislocations are produced by the same causes, which are usually falls or blows. They are attended with the same symptoms and require the same treatment as in adults. After reduction, we must watch children for a longer time, on account of their lymphatic constitution, which predisposes them to chronic arthritis and white swellings. We therefore, after reduction, which is more easy on account of the less powerful muscular action, and is effected with or without chloroform, believe it to be necessary to employ resolvents, and especially to prolong the immobility of the articulation by simple position, or by the application of an apparatus during fifteen or twenty five days, as if we had a fracture to deal with.

If we wished to speak of all the dislocations met with in children, we would only have to repeat, in all respects, the descriptions of the same lesions in adults given by standard authorities (Boyer, Malgaigne, Richerand, Vidal, etc.). We will only add, that while they may be reduced much more easily, even when they are of two or even three months' standing, the surgeon should be cautious in his efforts to reduce certain old dislocations, by the fear of breaking the epiphyses, which are not yet solid. We have found also that dislocations in children are often complicated with fractures of the articular extremities without displacement; at other times, separations of the epiphyses, which are not always very easy to recognize, because they may likewise exist without displacement, and for this reason it is always much better, even where there is a doubt, to keep for quite a long time the dislocated articulations in apparatus, even when the conformation tells us that there is no deformity, and that the articular surfaces are in proper relation to each other.

There are some dislocations which cannot be reduced, or if reduced cannot be kept so without difficulty; dislocations of the elbow for instance, which are more frequent in children than in adults, always result either as a consequence of a direct fall on the

elbow or the hand, or by jerking the forearm. We very often, in practice, meet with children suffering from traumatic lesions of the elbow; frequently there is simple contusion, sometimes articular twitching, complete or incomplete dislocation and fracture. Observed at the very moment of the accident, the injured elbow may be free from tumefaction, and in such cases the deformity or non-deformity of the articulation is sometimes very readily recognized, enabling us to detect certain simple or complicated dislocations, and often, if complicated with fracture, crepitation is present, and assists in the diagnosis. But without tumefaction, and especially with it, there is sometimes great difficulty in making a positive diagnosis. Crepitation certainly enables us to decide generally that there is a fracture, but fractures often occur in which we are unable to produce movement in the part in order to discover it, and hence difficulty arises in saying, whether there is or is not fracture, and especially what is its direction. Uncertainty must exist also when the fracture is unattended with displacement and appreciable crepitation.

There are some dislocations in which the articular prominences are so easily detected, and certain movements so impossible, that they cannot fail to be recognized; but, although the surgeon may be thoroughly versed in the study of these dislocations, so well described by modern writers, such as Malgaigne, Vidal, Bonnet, Nélaton, and especially in the excellent memoir of M. Denucé, it is very often next to impossible to detect several of these varieties of dislocations, for, being attended with slight displacement, they escape observation in the same way that certain fractures do. Thus, in a large number of children that we have seen, we have perfectly recognized, and always easily detected, complete dislocations of the elbow backwards, forwards, inwards, and outwards, and of the radius by rotation forwards and inwards; but we have often failed to recognize incomplete dislocations, such as subluxations with or without swelling of the soft parts. Besides, these incomplete dislocations, so well described by M. Denucé, are frequently imperceptible in the living subject, so slightly marked are they, especially in the child when there is swelling.

All the easily detected dislocations we have found in children are produced by the causes usually described for adults, and the principal symptoms pointed out for dislocations of the elbow in the latter are always observed in children, and the methods of reduc-

tion advised have always succeeded when the dislocations were recent. But there are some dislocations, the symptoms of which are but slightly marked, or, being incomplete, often escape notice, and are reduced by simple flexion of the forearm at a right angle. As for late reductions, we have succeeded in children, after the lapse of a month or six weeks, in reducing dislocations of the elbow backwards, but we have frequently failed in the three forms of dislocation forwards, backwards, and outwards of the upper extremity of the radius, even when these were not at all old. If we have sometimes brought the articular surfaces in relation, we have not been able to properly maintain them so. In these luxations of the upper extremity of the radius, and even in all those of the elbow, whether unreduced or reduced incompletely, time has done much to re-establish the movements, and, by gentle and continuous pressure, we have been able to restore the head of the radius gradually to its proper place, and the deformity has, in time, become much less considerable, and the movements have been preserved.

We have very often seen dislocations of the elbow backwards, chiefly the ulna alone, rarely both bones. We found one case of dislocation of the humerus forwards easily reduced, and we have generally seen dislocation of the upper extremity of the radius very often incomplete, and then we have been able to reduce it and keep it reduced, and this does not usually occur in complete dislocations. In regard to the after-treatment of all reductions of the elbow, we have always put the forearm in a state of flexion on the arm, keeping the forearm either in supination or pronation, according to the nature of the dislocation, whether it be backwards or forwards. We have several times been in doubt as to whether certain dislocations were simple or complicated with fracture, and in all cases, even in the doubt, we have kept the limb flexed; and we believe that this is advisable except in cases of dislocation with fracture of the olecranon, when semi-flexion rather than complete extension will be indicated. We always remove our apparatus at first at the end of twelve or fifteen days, in order to institute a slight movement in the articulation, and we re-apply a new bandage for a longer or shorter period, according to the necessities of the case. If there are any complications of fracture, we do not hesitate to apply an immovable dextrine apparatus, or else we place the limb in a grooved elbow splint, every twelve or fifteen days taking the precaution to institute movements in the elbow, to avoid anchylosis.

A mode of treatment which we have adopted for a long time when there is much tumefaction about the joint is, before or after the reduction of the dislocation the application of leeches and cataplasms around the elbow, with the view of preventing subsequent arthritis; but we now only employ cataplasms, and an application consisting of mercurial ointment and belladonna for several days, for we have noticed that arthritis consequent on external violence in children is much more uncommon than is generally supposed; and besides, the use of immovable bandages, the articulation being surrounded with wadding or not, with the precaution to watch the bandage, is the true prophylactic method in arthritis, particularly in scrofulous children. We still sometimes apply leeches in children of strong constitutions, and chiefly when the dislocation is complicated with fracture or serious contusion. In children as in adults, if we have often easily reduced dislocations of the fingers and of the phalanges, we have sometimes been obliged to make subcutaneous section of the ligament, to reduce in both cases dislocations of the phalanx, and have sometimes easily reduced dislocation of the first metacarpal bone, but once in a child of twelve years old we failed, as did our master, M. Velpeau. The child finally in time made good use of its thumb.

In concluding this notice of dislocations of the elbow in children, we may observe that the special indication in these cases is to employ methods of graduated extension with mechanical apparatus, in cases of incomplete anchylosis of the elbow, resulting from too long-continued immobility of the articulation from various causes, fractures, or dislocations. The use of these forms of apparatus requires at first the preparation of the articulation by baths, delicate handling, etc., and we must then proceed slowly, keeping a constant and attentive watch over it if we wish to avoid accidents.

CHAPTER XLVI.

ERYSIPELAS.

ERYSIPELAS, a superficial inflammation of the skin essentially spreading, is often met with in children and the new-born.

Causes.—These are either general or local, as the result of opera-

tions, of external injuries, wounds, hurts, vaccinations, simple excoriations, blisters, inflammation of the umbilicus, eczema of the hairy scalp, erosions of the genital organs, nates, etc. In the newborn, want of care is the principal cause of erysipelas, a serious affection at that age.

Symptoms.—A redness of the skin of greater or less intensity, often circumscribed, will be noticed, which disappears on pressure, and returns afterwards. This redness is more or less painful, and sometimes indolent. Very often these local symptoms are accompanied with swelling of the neighbouring ganglions, and of the lymphatic vessels of the affected region, in the form of reddish lines starting from the erysipelas, and directed toward the ganglions. Erysipelas is sometimes limited, and this is more appreciable to the touch than sight, and there is a very feeble ring forming the circumscribing boundary. When the erysipelas is seated in the eyelids, in the scrotum, or in the vulva, it is accompanied with infiltration of the subcutaneous cellular tissue. All these symptoms are preceded by chills, fever, and general disturbance; in some children there is even precursory delirium with vomiting. The symptoms of this disease gradually increase in intensity: there is heat of skin, fever, and great thirst, and besides, the skin being distended, the epidermis is modified, becoming elevated with the formation of vesicles full of serum; generally the erysipelas terminates by resolution, rarely by suppuration or gangrene.

This affection is sometimes epidemic, and even contagious, according to the opinion of the English surgeons, Arnott, Gibson, Lauveau, and of the French physicians, Alibert, Rayer, Chomel, and Costallat. We have not had occasion to establish its contagious character at the Hôpital des Enfants; nor have we had any more reason to believe in its positively epidemic character in our surgical wards at this hospital. This partly explains the more common success of operations in childhood.

Diagnosis.—This is easy, and to any one who has seen measles, scarlet fever, or urticaria in children, no confusion can exist in the diagnosis between these diseases and erysipelas. Erythema might be confounded with it, but this affection is free from tumefaction and pain, and is, so to speak, fugacious, and usually unaccompanied with general symptoms.

Prognosis.—As a general rule, this is as grave in children as in adults. Nevertheless, if we refer to our own experience, we will

say that this disease frequently follows a course more or less gradual, lasting ten or twelve days, and being cured without treatment by resolution. The redness, heat, and swelling diminish, and desquamation occurs; but this favorable prognosis is not exempt from exceptions, and should be especially modified for erysipelas in the new-born, which we will separately describe. Erysipelas should be considered as of a very grave character when it is not purely local, and is complicated with purulent absorption, characterized by prolongation of the general symptoms; chills, fever, vomiting, with rapid transition of the redness from one point to another, or when the disease is ambulant, as it is called. It is also grave when complicated with phlegmon, or inflammation of the subcutaneous and deep cellular tissue.

The treatment may be divided into general and local.

Local Treatment.—We do not agree with some authors, that local treatment is useless. If, in many cases in which the erysipelas arises from some general influence, we should abstain from local remedies, it is not the same thing in regard to the form of the disease arising from traumatic causes. When the erysipelas is due to a general cause, the treatment may be confined either to lotions more or less often repeated, with infusion of elder leaves or bran-water, inunction with lard, or, better still (for we are not at all partial to washes, especially those that are emollient and warm) powdering the affected part with potato starch or rice flour. In erysipelas occurring as the result of a wound, a slight hurt or an operation, if there is intense fever, very great heat, and a tendency to the extension of the disease, it has appeared to us that in some cases the inunction with mercurial ointment has succeeded, and the ointment of the sulphate of iron has given us some good results. Following the example of Dupuytren in certain ambulant cases attended with fever, delirium, etc., a blister placed in the centre of the part affected has put an end to all the symptoms, even in very young children. Having often employed these local remedies, I am satisfied that leeches over the lymphatic ganglions above the seat of mischief are sometimes very useful, but the application of collodion especially, according to the formula of Robert Latour, has given us in children the best results in traumatic cases. As for leeches, if there be heat and fever, we follow the example of Blandin in traumatic erysipelas, and apply them over the ganglions of the axilla for an erysipelas of the arm or forearm, if the gan-

glions are tumefied and painful; and over the region of the groin for erysipelas of the lower extremity.

General Treatment.—The indication always is, in erysipelas from general causes, to prescribe purgatives, emetics, diluent and laxative drinks, whey, lemonade, and herb broths, which are useful, according to the nature of the case. But, after operations when we fear the occurrence of purulent absorption, the alcoholic tincture of aconite, in appropriate doses in a julep, should be prescribed for our young patients, and repeated each day. Cinchona in coffee, given in the dose of fifteen to thirty grains of the soft extract of cinchona in black coffee, once daily, has appeared to us to be very useful in cases of purulent absorption, even in very young children.

Erysipelas of the New-born requires separate mention. It is observed within a few days after birth, and may be fixed or wandering, like that met with at all other periods of life; but its characteristic feature is, that it becomes developed in the earliest infancy, and has its seat most frequently around the umbilicus or about the genital organs, on the circumference of the anus or the nates.

Causes.—The smallest excoriation may be the principal cause of it. Cracks of the thighs or the scrotum, and frequently the inflammation that accompanies the descent of the umbilical cord, may produce the disease, and vaccine pustules may be its point of departure. Sometimes there is an epidemic cause, as is seen from time to time in lying-in hospitals when there exist epidemics of puerperal fever. The cause may also be found in the bad conditions under which children of the labouring classes live.

Symptoms.—As a general rule, there are few prodromic symptoms, although sometimes the infant has fever, vomiting, convulsions, and jaundice. The coloration of the skin now declares itself, and at one of the points indicated there is heat, with restlessness, insomnia and continuous frequency of the pulse; the redness, at first of slight extent, progresses, becomes painful and more or less diffused, sometimes taking the character of erysipelas, and overrunning all parts of the body. There is always more or less tumefaction, with infiltration of the subcutaneous cellular tissue. If the disease terminates by resolution, the symptoms referred to gradually diminish; but, on the contrary, and unfortunately, the child very often becomes enfeebled, and refuses to take the breast, diarrhœa and vomiting take place, and the affected part becomes of a more in-

tense red, and even the skin becomes gangrenous. When the sloughs become detached, the wounds resulting should be dressed with powder rather than with cerate, and the suppuration may only cease very slowly. We frequently notice also symptoms of peritonitis, and at the autopsy we discover pus in the spaces of the cellular tissue of the walls of the abdomen, and also false membranes on the intestines, and pus in the abdominal cavity.

Prognosis.—This disease is very grave, often mortal. The chances of saving children are so much greater in proportion to their age; but nearly all those only a few days old are carried off, no matter what may be done for them.

Treatment.—Internally we may prescribe laxatives, or calomel in fractional doses, and enemas if there should be constipation. We should not stop completely the milk of the nurse, if it is of the proper quality. We have not adopted the suggestion of English writers, and given two drops of the tincture of the chloride of iron every two hours in sugared water. Externally we may employ a few body baths of bran-water of short duration, and, as a general rule, few or no cataplasms; but what has succeeded best in our hands, is powder of potato or rice starch, but especially the application of elastic collodion repeated several days in succession, graduated in quantities according to the extent of surface involved; and we must, so to speak, pursue the disease with the collodion, changing very frequently the linen of our little patient, so that it may not become too moist. Every time that it is changed we should reapply the collodion. When the skin becomes gangrenous, applications of digestives may be sometimes useful to facilitate the separation of the sloughs; and this being effected, we must use simple dressings, still preferring starch mixed with tonic powders, renewed frequently and carefully. By such means we avoid fresh attacks of erysipelas, which are too often provoked by the fat substances, preparations of lard, of glycerine, etc., suggested in these cases. We have had some success, but very rarely, in the use of dressings with the powders only.

CHAPTER XLVII.

SPRAINS.

In children as in adults, a sprain is an abrupt articular distension, with or without laceration of the ligaments and the soft parts surrounding the articulation. This is generally met with in the tibio-tarsal articulation, but also in all the articulations, and chiefly in children in those of the forearm and wrist. It may be said in advance, that all the disorders which are produced in children who are lifted by the arms are sprains, in all cases in which this traction produces neither dislocation nor fracture.

Causes.—The suppleness of the articulations in children appears to us to be a cause which predisposes them to sprains less frequently than adults. The usual causes are falls, contusions, and strong tractions which exaggerate the movements beyond the normal state, and give rise to distension and laceration of the articular ligaments.

Pathological Alterations.—It is only by experiments on the cadaver that we are able to estimate properly, as Bonnet of Lyons did, the lesions produced by sprains; for we very rarely have the opportunity of observing at an autopsy a recent sprain. In the few rare cases that we may meet with in those who have died after sprains, and especially experiments on the cadaver, we discover in very slight sprains scarcely any distension of the ligaments, with slight sanguineous exudation; at other times when distension is observed in the articulations which have experienced violent and forced movements, the subcutaneous and intermuscular cellular tissue, and that around the joint, is lacerated to a greater or less extent, and the small bloodvessels are torn, producing ecchymoses; the aponeurotic fibres, the muscular fibres, and the tendinous sheaths are also sometimes lacerated, resulting in serous infiltration around the articulation.

Physiological Symptoms.—These are infinitely variable, according to the intensity; they may be transient and momentary, or protracted to a greater length of time. A distension of the

joint may cause a rapid and transient pain; there is suffering if the ligaments have been injured, and in an individual who has made a misstep by turning his foot abruptly in one direction or another, sometimes five or six minutes elapse before he can again rest his foot on the ground. Sometimes, however, it may produce pain of longer duration, and may then present the following symptoms: around the affected joint the patient may suffer more or less acute pain which impedes the movements, and when the sprain is seated in the foot, may prevent him from walking. This pain, caused by the distension of the nervous filaments, of the synovial membrane and of the soft parts surrounding the articulation, may last for a longer or shorter time, or cease almost immediately. Generally very soon after the accident, or some little time afterwards, the soft parts become swollen, ecchymoses appear, the pain increases, and the patient feels that it is necessary that he should not move his limb. In the simplest cases, the inflammation is of short duration, and the effusions of blood or other fluid become absorbed, and there remains a slight stiffness, which disappears in a few days. If the case is one of greater intensity, and the lacerations more extensive; if the constitution of the child is lymphatic, or if we do not at once make the articulation immovable, an acute inflammation occurs, which becomes chronic and may degenerate into white swelling.

The *diagnosis* is quite easy. In children a dislocation can hardly be confounded with a sprain, the deformity of the joint being very different. In the articulation of the foot, by instituting lateral movements of the foot in such a manner as to press alternately on the two malleoli, it is difficult not to recognize fracture of the fibula; and yet we may remain in doubt if the swelling is considerable, and only at the end of a few days can the diagnosis be made out with certainty. We cannot always at once appreciate the extent of the mischief, and in such a case it is better to abstain from making too long and painful an exploration.

The *prognosis* cannot then be made in all cases, especially if there is acute pain and considerable swelling, for the degree of the sprain may be infinitely variable, and we cannot affirm that the cure will be prompt, especially in lymphatic children.

Treatment.—This may consist, for cases of little gravity, either in the application of wadding around the articulation, secured with a retaining bandage, or else in *massage*, practised at once or in the

earliest hours after the accident, but only when there is tumefaction or infiltration of the soft parts, such cases being the only ones in which we can obtain a good result from this mode of treatment, employed at the commencement, and even later, taking the precaution to follow it with a retaining bandage, wet with a resolvent and soothing liquid, water, camphorated brandy, and a few drops of extract of lead.

Massage or shampooing may be especially practised on the foot, or the knee, or the wrist, and in the following manner: we must grease the hands with a fat substance, lard, for example, and exert gentle pressure very slowly and prolonged from below upwards, in order to cause the fluids effused around the articulation to ascend. We must carefully institute movements, as advised by Bonnet, of Lyons, and repeat them at different times and more or less frequently, according to the intensity of the sprain. We know that sometimes, after one or two such operations, the patient can walk. This has been observed several times by Dr. Lebatard, and has also occurred in our hands, in cases of slight sprains. We must continue the massage for several days when the sprain is not of much gravity.

Another treatment, employed for a long time, and still used by surgeons, and by us especially, particularly for grave cases, consists in the application of leeches, when there is considerable swelling and extreme pain. We may be satisfied merely to apply compresses wet with cold water, and to sprinkle the dressing either with cold water, or with a mixture of lead-water. I have derived benefit from continuous irrigations on the affected part. At the end of several days, we apply a gently retaining bandage, and place the affected part on a pillow arranged in the form of an inclined plane, in such a manner that the foot may be more elevated than the knee. When there is no longer swelling, we apply an immovable bandage, which may be left on for some time, fifteen days, a month, or longer. When we remove this apparatus, there remains in the joint nothing more than a stiffness, which disappears gradually when the joint is subjected to movements. If the sprain passes into a chronic arthritis the case is grave, for then we have to deal with a white swelling.

Sprains of the Forearm deserve a special mention. These accidents, produced in children who are roughly lifted by the arm, are, in our experience, with the exception of fractures and dislocations

which may arise in this manner, the most frequent of true slight sprains. These sprains take place in the various joints of the forearm, according to the nature of the movement impressed on the limb. In such cases—and we have seen a large number of them—the children have been lifted roughly by the arm, either to make them dance, or to jump over a gutter, or to prevent them from stumbling. Some of them had fallen, but nearly all had been taken by the hand, some by the wrist, others by the forearm; and in all cases the limb had been turned more or less abruptly, either in supination or pronation. Under these various circumstances, it is evident by observation, reasoning, and physiological examination, that the distension or pulling may involve several articulations. Thus, when the child is roughly lifted by the wrist or forearm, the movement of pronation or supination may take place either in the articulation of the superior extremity of the radius, or in the wrist. Either the lower extremity of the radius or that of the ulna may then be carried forward or backward, and the distension takes place in the ulno-radial or the radio-carpal articulation.

When these children are brought to the surgeon—and we have seen quite a large number—very few present fractures of the ulna or the radius, or dislocations either of the upper extremity of the radius or the lower extremity of the ulna; the majority, on the contrary, are not attended with any of these grave symptoms, though they nevertheless present features which especially alarm the parents, and sometimes even the physicians, on account of the cries and complaints of the children. In any event we find in children symptoms which are nearly always the same; thus, they cry and complain a good deal when the limb is moved, either extended or flexed, or movements of rotation or supination are impressed on it, and we do not observe any appreciable deformity. We sometimes hear, during the movements that are executed, a sound, without noticing the point from which it is produced, and we are induced to ascribe it to a gliding of the articular surfaces over one another. All at once, when these movements are once produced, a child ceases to complain, and without our being able to say that we have done much to cure it, we see him move the limb as he did before the accident. At other times this is not the case, and the pain persists; sometimes there exists sensibility over the superior articulation of the radius, sometimes the inferior articulation, and inferior ulnar articulation.

In our own experience we are generally far from being able to make out a precise diagnosis in all cases. We believe when we detect neither fracture nor dislocation of the upper extremity of the radius, nor displacement of the carpal extremity of the ulna, that there has occurred a sprain, generally of a slight character; that is to say, slipping of the articular surfaces and distension of the ligaments, or at least a tendency to a dislocation which has not been effected. We do not believe that these accidents are produced always at the elbow or wrist-joint, but, on the contrary, at several situations in the articulation of the forearm. Sometimes this lesion, when not of much gravity, passes into the wrist-joint, as our confrère M. Goyrand observed it in several cases, but we do not pretend, like him, that it is always at this point. We think we have heard, as he did, the peculiar noise over this articulation, but we have often detected it in the superior articulation of the radius.

In all cases, the prognosis being only grave if there are several recurrences, we content ourselves with putting the forearm in a state of flexion at a right angle, by placing the hand in supination or pronation, according as the patient prefers one position or the other, and in nearly all cases this position is excellent for the patients, who no longer complain, and as a general rule are cured in three or four days. If the pain persists at the end of that time, our advice would be to put on an immovable bandage for eight or ten days, placing the limb in the position indicated.

CHAPTER XLVIII.

OZÆNA.

THE name ozæna is given to a symptom produced by deep ulcerations of the nose, from which exhales so strong an odour that we cannot speak to children who are affected with it, without at once finding that the air they expire is charged with a peculiar fetor.

It exists in the interior of the nasal fossæ and the frontal and maxillary sinuses. In these deep situations, which cannot be seen on the living subject, we notice, as may also be detected on parts less deeply seated, at the entrance of the nasal fossæ, ulceration of

the mucous membrane at one or several points, but sometimes nothing can be seen.

Causes.—In adults, syphilis is frequently the cause of this affection. In the child, it is due to scrofula and often caries of some portion of the bones of the nasal fossæ. Sometimes very robust and healthy children, without any appreciable constitutional affection, are attacked with this disease. We have met with it in those who had narrow flat noses.

Pathological Lesions.—These are often true ulcerations at different points in the nasal mucous membrane, sometimes modification in the thickness of that membrane; at other times, ulcerations at the entrance of the nasal fossæ, but most frequently very deep in the anfractuosities of the turbinated bones and of the ethmoid.

Symptoms.—These are, abundant secretions in the nasal fossæ, of a purulent and sanguinolent character, forming crusts in the nose and chiefly exhaling a fetid odour, a cadaveric odour peculiar to caries, which has been compared to that of bed-bugs, and hence the term *punais* (punaise, a bug) has been applied to those thus affected. Ozæna is developed without anything announcing its approach; sometimes it commences in an obstinate stoppage of the nose, with local sensibility; at other times, headache, the expulsion of purulent mucus, and even of crusts. Very often there is loss or diminution of the sense of smell.

Prognosis.—As a general rule, ozæna is a tenacious affection; it is, nevertheless, of a less serious nature in children than in adults, for it often depends on a scrofulous vice, which may become modified as the child grows older; and the disease, therefore, yields sometimes in children at the period of puberty. It is modified also by the appropriate treatment. The general health is not usually influenced by this disease, which is often incurable, but which does not interfere with the healthy appearance of its victim.

Treatment.—In children we place in the first rank the varied anti-scrofulous general treatment, and at the same time deem it very important to combine with it good diet, the use of general tonic, saline, gelatinous, sulphurous baths, artificial baths during the winter, taken especially at the sulphur springs themselves, or sea-bathing, at the proper seasons. Benefit will also be derived from letting the child walk in the open air.

Although we do not place the same value on local remedies, regarding it as of the first importance, before everything else, to

modify the constitution, we nevertheless prescribe in succession powders to be snuffed up and injections. The powders we have used are those composed of tannin and alum, of one part of white precipitate to fifteen of powdered marshmallow root, or two parts of calomel and fifteen parts of tannin or cinchona. All these powders are snuffed up, or insufflated, several times daily. As injections, we have employed successively infusions of walnut leaves repeated morning and evening, sulphurous injections, Enghien water mixed with barley-water, the mineral waters of Bonnes, solution of bichloride of mercury (Van Swieten's solution) two spoonfuls in a glass of milk, injected morning and evening, the injection of chlorinated water, etc. A form of injection which has succeeded best with us consists of two spoonfuls of the following solution in a glass of water:—

℞. Potassæ permanganat. ʒijss.
Aquæ fʒiv. M.

It must be acknowledged that many of these remedies are employed without success for a long time, and as the child's constitution changes a cure may follow in some cases. In an excellent treatise on this subject, produced by M. Cazenave of Bordeaux, he states that he has used nitrate of silver with good results, applying it by means of a *porte caustique* contrived by himself.

We must not confound with ozæna the fetid emanations exhaled from the nasal fossæ as the result of caries or necrosis of the bones, as the vomer or the turbinated bones. When the ozæna depends on these causes, it will always yield more or less promptly after the expulsion of the diseased portions of bone, as we have ourselves observed in several children.

CHAPTER XLIX.

LACHRYMAL FISTULA.

Lachrymal fistula presents itself at the inner angle of the eye in the form of a small ulceration, which gives passage to the tears. We will confine our remarks to what we have observed in children. This affection is quite frequent, and is attributable to a lesion of the lachrymal canals causing swelling of the mucous membrane of

the lachrymal apparatus. The cause is often the lymphatic or scrofulous vice, and then it is a general cause; but it is sometimes local, a foreign body coming from without, or a concretion formed in the lachrymal canals, or else compression over the nasal canal by tumours of different nature in the neighbourhood of the lachrymal apparatus.

We have seen, in very young children, very minute openings over the inner angle of the lids, beneath the tendon of the orbicularis palpebrarum, scarcely allowing the introduction of an Anel's stylet, and giving an outlet at long intervals to a few drops of transparent fluid, especially when the inner angle of the eye is compressed; and yet we cannot really assert that the lachrymal sac was distended and formed a tumour. In some cases these little fistulas were congenital, while others occurred, without any known cause, after birth. We have seen several of these little fistulas, in young children, cured under the influence of astringent lotions, or by injections with infusion of walnut leaves; and we have seen them persist, no matter what was done for them. But the form we have generally observed has been true engorgement in the inner angle of the eye beneath the tendon of the orbicularis palpebrarum.

There are two forms of this affection. One of these, a true abscess, opens and results in suppuration, followed by ulcerations which cicatrize more or less slowly under the influence of general antiscrofulous remedies, or even of very simple local means, and have no communication with the lachrymal passages. The other form is a lachrymal tumour, presented in the shape of a small swelling, quite hard, and at first without change of colour of the skin. It is accompanied with epiphora, the eye is suffused, and on touching the tumour it becomes depressed. Tears may be made to flow, and may even be purulent, through the lachrymal puncta or through the inferior orifice of the canal through the nose. This kind of engorgement may remain for a long time stationary, and may sometimes be cured by injections made through the lachrymal puncta or the lower part of the canal. Generally the engorgement becomes inflamed, and ulceration is established; and we detect a fistulous point which communicates with the lachrymal passages, and gives an outlet to the tears.

In scrofulous children, the fistula may be cured under the influence of a general antiscrofulous treatment, prolonged for a considerable time, combined with the local treatment by means of

lotions of decoctions of walnut leaves, repeated for years, morning and evening, with perseverance. But there are cases in which the remedies we have suggested are not followed with any result, and in which, after being well assured that there is no necrosis of the bones, no foreign body or polypus, we have operated with success with the canula of Dupuytren; but we have been obliged to abandon it on account of accidents which require the more or less prompt extraction of this canula. We have seen it worn for several years, and afterwards those operated on blew out their canula and were cured. Recently we have decided upon the employment of butter of antimony for the cauterization of the nasal canal. After having met with numerous accidents, the slowness of the other methods adopted, and especially numerous recurrences, after such remedies as dilatation, setons, canulas, etc., we now resort to obliteration of the canal.

Dr. Magne has lately published several observations, and we have ourselves had several cases, which militate in favour of this procedure. Besides, nature has pointed out this method of treatment, since lachrymal fistulas are sometimes cured by the obliteration of the canal without an operation. After such obliteration, there is, at first, lachrymation, which gradually diminishes, and finally disappears. Hannoni opened the sac under the tendon of the orbicularis palpebrarum, filled it with charpie, and on the next day, after the pain had ceased, he cauterized the sac with a mixture of alum and precipitate. Dr. Magne cauterizes the sac with butter of antimony. We ourselves operate as follows: we first open the sac beneath the tendon of the orbicularis, and, after washing out the cavity, separate the lips of the wound with a small bivalve dilator introduced into the orifice of the canal, carrying to the bottom of the sac a small sponge, firmly secured on a stylet, impregnated with butter of antimony, and sufficiently small to penetrate easily. In these cases we have also employed general anæsthesia.

Swelling may occur, the cauterized part may suppurate, the canal become obliterated, for several days there may be lachrymation, and the wound slowly cicatrize. We are sometimes obliged to practise a second cauterization, but, as a general rule, it may be sufficient, after cauterization with butter of antimony, to touch the wound with nitrate of silver, and cicatrization thus terminates.

We have seen patients cured after a single application of butter of antimony, who, several years after the operation, had no recurrence of the disease.

CHAPTER L.

ANÆSTHESIA.

GENERAL and local anæsthesia may be, and should be, resorted to in certain cases, in children as in adults. We have employed it in those of only a few months of age, and have never had any accidents. We believe that even in childhood we may, by the prevention of acute pain, obviate the occurrence of convulsions, which certain very painful operations might otherwise induce. It may, indeed, serve to facilitate the performance of several delicate operations.

General anæsthesia is indicated in children in all operations which require any length of time, such as lithotomy, lithotrity, amputation, operations for hernia, and even simple reduction of strangulated hernia, extirpation of a tumour of greater or less volume, the reduction of certain old dislocations, ligation of a principal artery, as the brachial, the femoral, the carotid, etc. Local anæsthesia is reserved for operations which are rapidly executed, as the opening of abscesses, phimosis, extraction of a nail, extirpation of a small tumour, or cauterization of erectile tumours with red-hot iron.

General Anæsthesia.—In all cases in which we employ it, we use either pure chloroform, or, better still, equal parts of chloroform and ether. We administer it to the patient fasting, or at least three hours after eating, the child being in a recumbent, not in a sitting, position. We use a conical sponge, shaped like a mushroom, having an opening at the top and bottom of it, placing the sponge in a horn made with a compress or a handkerchief, the point of the horn being permeable to air. We pour the liquid upon it in such a way as to soak the sponge moderately, and we place the base of this apparatus in front of the mouth and the nose, keeping it at a certain distance without touching the lips of the patient. We cause him to breathe as freely as possible, carefully watching the pulse and the respiration. When the former becomes more feeble and less frequent, we suspend the inhalation, resuming it if

necessary. When the skin is insensible to a pinch, when the pupil is dilated, and the patient is not excited, the time has arrived to operate.

If the respiration and circulation diminish, we must not keep up the inhalation, but carefully put the child in a sitting posture, keeping him lying on his back, with the head slightly inclined downwards. If the respiration continues to diminish, or takes place in an incomplete manner, we must depress the tongue rapidly, in order to force the child to take a full inspiration, and throw cool water over the face, and at the same time excite movements in the chest to increase the activity of respiration. We must place both hands on the lateral portions of the child's chest, and thus embrace the thoracic cavity, making with both hands movements from above downwards, to successively elevate and depress the ribs, and thus produce artificial respiration. This method has always been of service in our little patients, and we have never met with any difficulty in making the respiration persis .

Local Anæsthesia.—When we cannot employ general anæsthesia, we must resort to methods for rendering insensible the part on which we have to operate. This we have often done with success. To fulfil this indication, we make an application either of ice or of the vapour of ether. We pulverize the ice and mix it, as Arnott suggested, with a third part of gray salt, and place this mixture either in a little gauze bag, or in gold beater's skin, and apply this bag over the part we wish to render insensible, a result which follows at the end of three or four minutes. To apply the vapour of ether, we have used Richardson's apparatus, constructed by M. Galante, on the suggestions of M. Salles-Girons, the object of which is to project pulverized ether on the point where the bistoury is to be used, so great a coldness being produced that we can make an incision without the patient experiencing any acute pain. The sensation of very painful cold, which impresses them, makes some children cry.

In any event, this agent may be resorted to with advantage, as may ice also, and either of these can be employed with children, to obtain local anæsthesia, when general anæsthesia cannot be used; but we have found that patients bear ice better than ether. We must repeat that this local anæsthesia can only be employed when we have to operate in a circumscribed situation. Otherwise we should prefer general anæsthesia.

CHAPTER LI.

PHLEGMON.

In children, as in adults, phlegmon, which consists in inflammation of the cellular tissue, is met with in the new-born as well as in children more advanced in years. We find it either circumscribed or spread, superficial or deep.

Causes.—Frequently the causes are traumatic, and sometimes spontaneous in children, chiefly as the result of certain diseases, as measles, scarlet fever, smallpox, etc.; and we see phlegmons that are, so to speak, critical. The traumatic causes are numerous; contusions, wounds, excoriations, the presence of foreign bodies, splinters, needles, shot, etc., may give origin to phlegmon, and these are its most frequent causes. Different operations are also very often followed by erysipelas, which is complicated with serious phlegmons of greater or less extent, superficial or deep. Affections of the bones and of the periosteum may be causes of phlegmon.

Local Symptoms.—The affected part is tumefied, with redness that does not disappear on pressure, more or less hardness and resistance, acute pain with pricking or pulsation, and heat. There is swelling which is not circumscribed, and extends more or less deeply under the aponeuroses through the tendinous sheaths. The movements are painful, and the disease may progress very rapidly or very slowly, either towards resolution, or towards suppuration or gangrene. Sometimes resolution may occur in a few days, and the heat, pain, and tumefaction will diminish rapidly, and the affection be cured. If suppuration declares itself, it may be developed in two or three days; if the phlegmon is superficial, the skin becomes elevated, attenuated and soft, and fluctuating at one point, proving that the abscess is about to open, destroying the skin. But if the phlegmon is deep, the pus, instead of endeavouring to find an outlet through the skin, becomes more deeply diffused, detaches the muscles, passes alongside the tendinous sheaths, sepa-

rates the periosteum, and reaches even the bones which it denudes, and then spontaneous openings slowly appear on the skin, and the pus makes its appearance externally through the fistulous orifices. If the inflammation terminates in mortification, the skin is seen to become gangrenous, and the aponeuroses, muscles, and tendons are exposed and bathed in pus. The gangrene may act on the deep parts in the small pelvis, in those surrounding the rectum, etc., for example, or on the excretory ducts in the vicinity of the purulent collection.

General Symptoms.—When the phlegmon is not very deep, the general symptoms are sometimes almost null, but there is, nevertheless, always more or less acute pain; but if the inflammation is more deeply seated, there may exist at first a precursory chill, even before any local phenomena are observed. In children, we have met with chill, fever, delirium, convulsions, and even vomiting; we have seen the most circumscribed phlegmon produce convulsive movements, which presented themselves before the appearance of the inflammation, and which ceased as soon as it was well marked, like that which takes place in certain diseases of the skin.

As a general rule, at the commencement of the local symptoms, the fever is very intense, but it frequently diminishes, without disappearing, at the time of the development of suppuration, to persist sometimes for a considerable time. When the pus makes its appearance externally, in circumscribed phlegmon, the fever ceases completely; but in cases in which it occupies a vast extent, when it is diffused and the suppuration abundant and occurring in a well-supplied part of the cellular tissue, the fever then continues, and becomes augmented, and the patient may become marasmic and sometimes die with symptoms of purulent absorption. On a post-mortem examination, we often find the evidence of very serious mischief; the muscles, tendons, vessels, and nerves are as if dissected and deprived of their cellular tissue; the denuded bones are bathed in pus, and very often, in scrofulous children, the bones are necrosed, and become the point of departure of the phlegmon.

Diagnosis.—This is easy for superficial subcutaneous phlegmon, but difficult for deep phlegmons, of the thigh, for example, and neighbouring parts of the pelvis. We must call both sight and touch into requisition to establish the diagnosis, and we must, by the assistance of the fingers, discover the engorgement of the soft parts and distinguish the pus by the appreciation of the fluctuation,

which is detected by placing the fingers on one side of the swelling, and pressing with the fingers of the other hand on the opposite side. We thus feel the wave by the movement given to the pus, which does not take place in engorgement occurring at any other time than in this purulent condition.

Prognosis.—This varies with the location and extent of the phlegmon: when the latter is circumscribed, it may be favourable; when diffused and occupying a large surface, it may be very grave, especially in cases of deep phlegmon.

Treatment.—As a general rule, we should administer internally soothing drinks, restricted diet, or at least a light course of food of milk, broth, mild soups, and cooked fruits. Externally in the local treatment at the commencement, if the cause is the presence of a foreign body, we must extract it, if possible. If it be due to any other cause, we must, in children as in adults, commence with emollients in the form of baths or cataplasms, being cautious in regard to the use of bloodletting. If, nevertheless, the disease is observed in a strong and vigorous child, with much fever, we may in phlegmons involving a large surface and of a very intense character, arising from a traumatic cause over the whole of a limb, for example, obtain resolution rather by general bloodletting than from the application of leeches. It has, in fact, the advantage over leeching, that we can extract the quantity of blood the child is to lose, while by leeching we may not be certain of this quantity. This treatment, however, which we regard as very useful in phlegmon arising from a local cause, appears to us to be injurious, if the cause is a general one, which is often not appreciable. We, therefore, in the greatest number of cases, rather than debilitate the child by loss of blood, prefer at first to prescribe a gentle purgative, with a proper position of the limb, which should be elevated and placed on an inclined plane, with applications of cataplasms.

Frequently, compression well exerted over the whole limb, following the plan of Bretonneau, has succeeded. In these cases, the application of blisters has not been attended with favourable results, and we greatly prefer, at first, to employ the treatment of Serres d'Uzès, which consists in making large inunctions, repeated three times in the twenty-four hours, with pure mercurial ointment, combined with extract of belladonna, if there be acute pain. The elastic collodion of M. Robert Latour has not succeeded as it has

in erysipelas; and yet it is of service in some phlegmons, and we do not, therefore, ignore it in all cases.

These remedies, employed from the commencement, and one after the other, have been of positive advantage in obtaining resolution; but if, in twenty-four or thirty-six hours, the phlegmon does not show any signs of diminution, we at once, in children as in adults, make early incisions, more or less numerous and deep, according to circumstances, and even before the establishment of fluctuation. This method of treatment is also beneficial in extensive phlegmons, as it is for whitlow, which is really only a phlegmon of the finger, and requires prompt division. Even by a single incision only, we prevent very grave symptoms, and it is especially by means of two, three, or more, which we may often prolong under the aponeuroses, that we obviate purulent collections and gangrene. Following the example of our colleague, M. Chassaignac, we have sometimes derived great benefit, in very extensive abscesses, from establishing drainage with caoutchouc tubes riddled with holes, which might serve as a means of introducing emollient or detersive injections, according to circumstances. Injections without the drainage are also useful.

As in certain cases of absorption, so also in these cases of deep suppuration, we may administer internally alcoholic tincture of aconite and cinchona. The patient should be strengthened, and simple and often tonic and modifying dressings be carefully applied. We have very rarely had phlegmons to treat that were so severe as to demand amputation, which is only indicated in these cases, when the child's general health allows of it, and when all other methods of treatment are inapplicable.

CHAPTER LII.

CERATITIS.

CERATITIS, or inflammation of the cornea, is often met with in scrofulous children. This disease, which was observed many years ago, but especially studied by Wardrop, Travers, and later still by M. Velpeau and all the oculists, may be divided into several varie-

ties, the superficial, interstitial, and deep. The first attacks the most external layer, the second the tissue of the cornea, and the third the membrane bordering the concave surface, the membrane of Descemet.

Causes.—These are the same as those enumerated for ophthalmia or oculo-palpebral conjunctivitis, and in addition to these the scrofulous diathesis is often the special cause.

Symptoms.—Superficial ceratitis, which is observed on the external surface of the transparent cornea, is most frequently an extension from the conjunctiva. The external layer loses its brilliancy, becomes dull, and even as if deprived of its polish through a greater or less extent, and the conjunctiva in these cases becomes of a violet red; the vessels are spread over the cornea, or isolated and forming very fine threads, or else arranged in a semilunar or triangular patch. Sometimes there is a little pustule at the apex of the triangle, which is directed from the circumference to the centre. Often the conjunctiva forms a ring around the cornea, not as prominent as chemosis. If the ceratitis travels further and is not checked in its course, the outer membrane may be raised and form a kind of phlyctena. Interstitial ceratitis is thus developed. In such a case, the sight, which was at first merely obscured, is now effected only through a very thick mist; the colour of the cornea is notably changed, and it is cloudy. There is, in the interstices of the cornea, either lymph or pus, and if the morbid products are spread over the whole cornea, vision is lost. As long as there is no solution of continuity in the anterior membrane, the patient bears the light, but the smallest ulceration of the cornea produces photophobia. We sometimes find pus formed between the layers escape externally or become very slowly absorbed.

Inflammation of the cornea, when it reaches the internal membrane, constitutes deep ceratitis, and the name *keratite ponctuée* has also been given it by the French. It very often happens then that there is cloudiness in the anterior chamber, situated in front of the iris; this is plastic lymph mixed with the aqueous humour.

The three varieties of ceratitis are not always met with separately; that which is seated in the anterior membrane is the most easily distinguished, and most frequently the different varieties succeed each other in the same eye. When the ceratitis is in the acute state, it may be resolved, or terminate in specks formed of plastic lymph, or may give rise to pus, ulceration, or even become softened.

These various forms of ceratitis may terminate in the chronic state, invading the cornea totally or partially; in such cases the membrane, which in the normal state is transparent, at first becomes pale, and loses its transparency; there is a slight cloudiness, then small points followed by spots that are sometimes very minute; there is neither photophobia nor lachrymation, the cornea has lost its polish, gradually assuming a milky, opaline appearance, and if the chronic ceratitis commences at the circumference, we notice there a peculiar vascularization, and sometimes vessels starting from the circumference and going towards the centre. This chronic state is very often the cause of loss of sight, yet, in children, time, aided by anti-scrofulous remedies, sometimes brings back the transparency.

Treatment.—This may be both local and general; in children, it is usually that advised for scrofula. Under some rare circumstances, if there exist much pain and very active inflammation, we may have recourse to the application of leeches to the temple or behind the ear, but we must be cautious in their use. Advantage will also be derived from the use of the various purgatives.

The local treatment directed to the cornea should be composed chiefly of preparations containing the nitrate of silver. If there be superficial ulceration, and the cornea has lost its polish, collyria of nitrate of silver are of great service, but they should be employed with prudence. As ceratitis is always accompanied with iritis, the preparations of atropia are indispensable in the form of collyrium or ointment. Mercurial ointment often appears to us to be indicated, either over the temples, or on the cutaneous surface of the lids. A light layer of tincture of iodine, spread by means of a brush over the external surface of the lids every two days only, has been of advantage in our hands.

When the ceratitis is characterized by a vascular condition, in which the bloodvessels spread from the circumference to the centre, cauterization around the circumference of the cornea is beneficial. The circumscribed ulcerations often improve under a light cauterization with a pencil of nitrate of silver, according to Sanson's method. When the ceratitis is deep, and invades all three layers of the cornea, topical applications are almost valueless, and so also is even scarification of the conjunctival swelling, though sometimes it is practised with useful results. Blisters over the eyelids, advised by M. Velpeau, have often appeared to be attended with success, except in certain cases of ceratitis with chemosis. When the three

membranes are opaque, topical means are then useless, and we must resort slowly to abrasion of the cornea, and yet this operation, which is very delicate and very serious, may only offer a hope of success if the internal membrane is intact, a condition which is difficult to distinguish. We have never performed it, and the indications for this operation do not seem to us sufficiently positive for us to advise it.

All the various spots which are seen upon the cornea as the result of ceratitis are difficult to distinguish in their shades, to decide with certainty on the various operations proposed for their destruction. A superficial spot, depending on plastic effusion under the external layer of the cornea, may be touched with nitrate of silver, and in this case we substitute an acute for a chronic inflammation, which may sometimes be followed by successful results.

CHAPTER LIII.

STRABISMUS.

THIS name is given to permanent deviation of the eye, which is, as a general rule, observed in young people. It may affect one eye or both. In the former case, there is want of harmony or a peculiar convergence between the two visual axes; and if the sound eye be closed, the other becomes straight and directs itself towards the object presented to it. When the deviation exists in both eyes, there is divergence or convergence. Strabismus may be transient or permanent; thus, during a convulsion, the eyes may deviate, and not continue so afterwards.

There are four principal varieties of the direction of the strabismus; it may be internal or convergent, external or divergent, and upwards or downwards, ascending or descending. Strabismus may be fixed and remain as it is, or pass from one eye to the other, and then it is the alternative form. We may find in these deviations more or less intensity; thus, sometimes there is a first stage, in which the axes of the eyes are well directed when viewed from a distance, while they look inwards when viewed more closely. This is called the *false line of vision*. There is a second stage, in which there is

an open deviation of the eye, and the cornea is half concealed under the lid; and a third stage, in which there is so much deviation, that nothing more than the white of the cornea is visible.

The *causes* of strabismus are either alterations of vision arising in different manners, or mechanical obstacles, as an orbital tumour, paralysis or retraction of the muscle. One of the chief causes, especially in tender infancy, is the bad habit of using only one eye, as the position given to a new-born child in relation to the light causes it to direct only one of its eyes towards it, and hence produces strabismus. Several cases of this kind are cited in works upon this subject, and in such cases the children have been cured by changing the position and exercising the affected eye. There are certain occupations in which only one eye is used, in using a magnifying glass, for example, and this practice may cause strabismus, even in individuals already advanced in years. Certain injuries of the retina, and opacity of the crystalline, existing on only one side, are also the cause of strabismus. The central spots, resulting from ceratitis in children, are also the cause of the deviation of the affected eye. There are cases of transient strabismus, such as those occurring during convulsions, and sometimes these may become permanent. We must also remember that if moral emotions, as chagrin, anger, etc., are not causes of strabismus, they may momentarily increase its intensity. Certain lesions of the cerebral substance, whether acute or chronic, may gradually or suddenly produce strabismus.

Symptoms.—In referring to the varieties of this affection, we have made known the principal symptoms, and as a general rule it is easy to recognize them. There is always want of harmony between the axes of the eyes, but the sound eye is frequently the only one which preserves the faculty of vision, and yet the contrary may be the case. Nevertheless, the affected eye is always the weakest, and may as a result even become amaurotic. We notice that usually the affected eye has a normal direction, if we close the sound one. In some children, we have found the strabismus to be only appreciable when they looked at distant objects, and no longer existed when they examined those nearer at hand. The affected eye does not present, in its different membranes, any alteration, unless the strabismus succeeds an amaurosis, a cataract, etc.

Frequently strabismus is produced by a paralysis of the sixth or the third pair of nerves. In the former case, the deviation is in-

wards, and there is nothing special about the pupil; in the latter, the eye is drawn outwards. We often find dilatation of the pupil, and besides but little action in the upper lid.

Treatment.—To overcome the strabismus, we must employ varied means, according to the causes. Thus cerebral affections and paralysis should be combated, if they cause the strabismus. When specks or amaurosis or cataract are the causes, these are the affections we have to treat; and so also lesions of the retina, which may be detected by the ophthalmoscope, must be treated according to the nature of the case.

We should commence to treat the strabismus by means of certain exercises, with the view of restoring the devious eyes, consisting in directing the sight in different directions,—inwards, outwards, and upwards. We may, with much patience, by means of bandages, glasses, goggles, or lateral reading, as advised by Rognetta, obtain some good results. These different means may be usefully employed in strabismus of a single eye, even when complicated with myopia, spots on the cornea, and weakness of the muscles, and even in cases attended with contraction of the latter. But, as all these means just mentioned usually fail, the indication is to resort to division of one or several muscles of the eye. Stromeyer advised ocular tenotomy, and a year afterwards Dieffenbach put it into operation. It was soon practised widely by numerous surgeons, perhaps too much so, by Amussat, Baudens, Bouvier, Guérin, etc. In 1841, we performed this operation about sixty times, chiefly in adults, in young subjects fourteen or fifteen years of age, and in some under seven or eight years, but more rarely.

The division should be made on the contracted muscle; thus, in divergent strabismus, we should practise myotomy of the external rectus; in the convergent form, the internal rectus; in ascending strabismus, the elevator muscle; and in the descending form, the inferior rectus. The division of one muscle is generally sufficient, and yet, in certain cases, we must divide the oblique muscles. In any event, let us point out the plan of operating. We have, as a general rule, performed Dieffenbach's operation.

We have generally operated without chloroformizing our patient, but we do not hesitate to administer by inhalation a mixture of equal parts of chloroform and ether. We keep the child in a recumbent position, with the head elevated on a pillow, an assistant holding the head thus supported, or we may operate with the child

in a sitting posture. The instruments necessary for the operation are an elevator for the upper lid, a depressor for the lower, two small sharp-pointed hooks for fixing the eye, a blunt hook, a pair of scissors with curved blade and pointed. Three assistants are absolutely sufficient, yet, when operating on a child, it is well to have a fourth to support the limbs. If we do not administer chloroform, we may keep the child seated, with the head resting on the back of a chair, or else on the breast of an assistant, who holds the child on his knees. The first assistant is charged with the duty of holding the head, and he places himself over the head of the bed or behind the chair. The operator, having placed the bed before a window, places himself to the left or the right of the patient, according to the eye to be operated upon. It is the duty of a second assistant to keep the upper eyelid raised with the elevator, which the operator has himself previously placed in position. A third assistant keeps the lower lid depressed.

The surgeon, having applied a bandage over the eye on which he does not operate, should proceed in the following manner. If the patient is seated, the operator likewise takes a seat in front of him. If chloroform is to be administered, we must hold the child on the bed, and then the surgeon will require the two assistants holding the lids to preserve perfect immobility in them. The operator is armed with the two small sharp-pointed hooks in one hand, the left, if he operates on the right eye in convergent strabismus. Having told the patient to look outwards, he introduces a small simple sharp hook in the conjunctiva, at the distance of two-fifths of an inch from the caruncula lacrymalis. After having properly introduced it as far as the sclerotic, he may then draw the eyeball outwards and keep it in that position. With the right hand he introduces a second hook at a distance of a fourth to a fifth of an inch to the inner side of the first one, nearer the caruncle. He raises the conjunctiva by forming a fold transverse to the eyeball, and, causing the assistant who supports the lower lid to hold this last hook, he retains the former in his left hand. Then, having the right hand free, the surgeon takes the scissors, divides in the middle of the fold the whole thickness of the conjunctiva perpendicularly to the direction of the muscle, exposes the subconjunctival fibrous layer, incises it, and lays bare the muscle which it covers.

Then, while the assistant holds the other hook, he takes with his left hand the blunt hook, and passes it under the muscle, which he

raises, and carefully divides the aponeurotic sheath, but not too freely, as otherwise the eye would no longer be satisfactorily held in place, and exophthalmia would occur as the result of the operation. When the muscle is plainly visible, it may be divided at a single cut with the scissors, or else the surgeon may follow, as we have done, the plan of Dr. Philips, which consists in making an excision of the attachment of the muscle. In operating thus, the contracted muscle is grafted farther back on the ball; we then remove some very minute portions of the muscle by means of a second cut of the scissors on the side of its attachment to the sclerotica. If any muscular fibres escape, we must repeat the division, and, if after this the eye is carried upwards or downwards, the indication is to carry the blunt hook either upwards or downwards, to divide the contractions which might interfere with the straightening of the eye. We must, in such case, act with deliberation, and not divide too much, and yet enough.

In cases of divergent strabismus, and likewise in the ascending and descending forms, we also make a division of the muscle which, by its contraction, causes the deformity. In ocular myotomy, requiring two assistants, the operator must, before commencing, secure by means of a piece of thread, a small sponge, held by the ring and little finger. This does not prevent him from holding the scissors, and enables him to wash out the wound during the progress of the operation. As a general rule, there is but little hemorrhage, and sometimes there is no necessity to use the sponge.

The operation over, the eye must be washed with cool water, and kept closed, and for twenty-four or forty-eight hours lotions of water applied. A compress of soft linen should be left on the eye, and it is prudent to let the patient remain for two or three days with the room moderately lighted. There are even many cases in which these precautions are not taken, and in which acute inflammation does not occur, nor any bad symptom, even when the child continues to go out. In fact, in more than seventy cases of strabismus on which we have operated, only one has been, as the result of imprudence, attacked with violent inflammation, the others having all been followed by good results. Some of them have had the eye made perfectly straight, others have only had a slight improvement, while three or four remained after the operation as they were before it.

In many of our cases, we have had to cut out a granulation, which

was developed on the wound; sometimes we have seen it disappear without any interference on our part or by touching it with nitrate of silver; generally we have been obliged to practise excision, but not until eight or ten days after the operation. After performing a large number of operations, we have come to know that we must quite frequently resort to strabotomy, and that this operation appears to us to be indicated in almost all cases in which, before we close the good eye, we find the affected one become straight, and in cases of double strabismus, when one of the eyes returns to its normal condition of straightness when the other is closed.

We may absolutely practise this operation at all ages, but too tender infancy is a contraindication, for we may obtain modification of the strabismus with time and the means previously suggested. We would consider it more reasonable to wait until about the age of twelve or fifteen for the performance of this operation. In re-establishing the straight position of the eyes, there is sometimes advantage in giving strength to an eye which has not been used, and to enable a useless eye to be employed. Accidents being rare, a surgeon is not rash to attempt the operation, except in certain cases of strabismus resulting from an injury, in which we have seen it performed without success, and in which we have once failed, and in cases of paralysis, the result of acute or chronic cerebral lesions.

CHAPTER LIV.

CYNANCHE PAROTIDÆA.

THIS disease is characterized by a swelling situated in the parotid region, on the outside of the parotid gland, and is observed in children and in youth. We have certainly seen this affection in young children, most frequently in those in the second stage of childhood, but we are far from having been able to detect many things that are referred to in the authorities on the subject of these engorgements, which have been confounded with inflammation of the parotid gland, a disease of a much more serious character, that we have sometimes met with in scrofulous cases. The parotid glands are not involved in cynanche parotidæa, which attacks the cellular tissue external to these salivary glands.

Causes.—As stated in all the standard authorities, we have found moist and cold weather, draughts of air, and abrupt changes of temperature acting as causes of this affection, while sometimes we have been unable to ascribe it to any very evident causes. We have found the disease epidemic in variable seasons.

Symptoms.—It has appeared to us to commence always with a general condition of fever preceded with chills, followed with soreness and pain in the parotid region, with swelling, rather of an œdematous than of an inflammatory character, which may extend over the lateral portions of the neck and the face, so as to singularly enlarge their transverse diameter. There is pain, but little change of colour of the skin, sometimes heat, and the skin becomes tense, rosy, and smooth; and these phenomena are accompanied with trouble in deglutition, the patient opens his mouth with difficulty, the submaxillary ganglia are engorged, and there is salivation. Frequently the two sides are developed at the same time, and yet one may be of larger size than the other.

As a general rule, we have obtained a termination of the affection by resolution, the general and local symptoms gradually diminishing; the fever, of which there is more or less, rapidly subsiding, as well as the tumefaction of the engorgements. We have, however, seen, but rarely, suppuration occurring, and have then detected subcutaneous abscesses. We have also seen these engorgements diminish in volume and disappear quite rapidly, and engorgement of the testicle appear as a result, by metastasis. Prof. Grisolle cites an atrophy of the testicle resulting from the rapid termination of this disease by resolution. We have not met with such a case at the Hôpital des Enfants.

This kind of engorgement has not been of a very grave nature in the cases we have seen, and has not been followed by serious results. It is quite otherwise with parotitis, which must not be confounded with the disease in question, for true inflammation of the parotid gland is usually accompanied with very grave general symptoms, terminates in a deep suppuration, and is often fatal. Cynanche parotidæa, as presented to us in children, is of a benign intensity, has a duration of eight or ten days, and sometimes a little longer.

Treatment.—Most frequently, we have employed only a simple method of treatment; no general or local bloodletting, a few mild purgatives, the application of resolvents and emollients over the

engorgements, and, better still, no moist applications, but by preference wool or wadding; in case of suppuration, a few poultices, and when a collection of pus is formed, instead of an incision, the introduction of a seton thread which may be left in for several days, and which, by puncture with needles, allows the pus to discharge without leaving afterwards visible scars on the face.

CHAPTER LV.

SPINA BIFIDA.

SPINA BIFIDA is quite a rare malformation. It consists in an arrest of development of the spine and especially of the laminæ, involving one or several vertebræ, which allows the membranes of the cord to produce a hernia.

Causes.—As in the majority of malformations, the cause is far from being positively known.

Symptoms.—These are a fluctuating tumour on the posterior portion of the vertebral column, more common in the lumbar region, more rare in the sacral region, and still more so in the cervical. The tumour is often without change of colour of the skin, sometimes reddish, because it threatens to break through. Children may come into the world with a gangrenous or even a fistulous point. As a general rule, we see only a tumour, with or without hydrocephalus; sometimes several exist on the same subject. The tumour is hard and resisting when the patient is placed in an upright position. If we keep the child lying on its stomach, the tumour is of less size, more or less soft, especially if the head is held back and lower than the trunk. Inspiration and expiration produce movements of subsidence or of distension in the tumour. It may be wholly reduced by pressure or only partially so.

When there is hydrocephalus, by pressing on the head we may cause the liquid to reflow into the vertebral tumour, or *vice versâ*. By the compression of this tumour we may produce cerebral symptoms, sometimes coma; we provoke cries in the child, and even paraplegia may occur. We very often find other malformations in those affected with spina bifida.

Prognosis.—This vice of conformation is essentially grave, when

the tumour is of large size; nature is in the great majority of cases impotent, and surgery of but little service. Spontaneous rupture before or after birth leaves little hope of cure, though it often occurs. Nevertheless, when the tumour is small and exists alone, it is not always completely incurable. In the majority of cases, the serious influence of this tumour is felt upon the general health, especially if it opens and produces a fistula. Very often it occasions wasting, and the nearer the tumour is to the cervical region the more rapidly is the child debilitated.

Those who live usually present symptoms connected with the nervous centres; they become paraplegic, if they are not so at birth; always, or at least very often, there is a general condition of languor, emaciation, incontinence of urine and of fecal matters, sometimes convulsions. Some children live for a very short time, dying of cerebro-spinal meningitis, but at times, however, their existence is prolonged for several years, twenty to twenty-five years or more.

Pathological Alterations.—One vertebra alone may be divided, at other times several. Usually there is a separation of the vertebral arches, or else the lateral arches are destroyed. An opening is consequently seen, of variable length and width, like a button hole, in the vertebral column. In examining the liquid which bathes the spinal marrow, we find it to be the cerebral fluid; it is more or less abundant, according to the size of the tumour, which is variable. This fluid is limpid, insipid or saline; sometimes containing flakes, in which is pus or blood, especially after the operations, which are considered beneficial in these cases. In carefully dissecting the marrow, we have several times seen the two lateral halves of the spinal cord separate and distinct, the cord then appearing flat and enlarged. The spinal marrow may also be longer; it may be atrophied and softened, or it may be deficient sometimes opposite the vertebral hiatus. The spinal nerves are lost in the thickness of the walls of the tumour, or these nerves float in the cavity of the sac.

Treatment.—It has seemed to us wholly impossible to cure the spina bifida in a radical manner; in fact, whatever we may do, we can never fill up the portion of bone, which is deficient in the spinal canal. We may, however, hope for a palliative cure, which will put children that are born with this malformation in a better condition. The means to be employed should produce adhesion of the walls of the sac, that it may no longer be distended with the spinal fluid.

Compression.—The first and most simple method consists in compression, either by means of cushions or bandages, a procedure which Sir Astley Cooper practised with success, employing compression alone or combined with punctures. We have performed it successfully two or three times; those operated on have lived, but we lost them from sight, as they came to us from the provinces, being brought to us for consultation. One case died of another disease; we had it under observation for two years, but we did not succeed in getting an autopsy. As a general rule, we have made a capillary puncture, and afterwards compression with disks of agaric and a circular flannel bandage. At the end of eight or ten days, the tumour filling up again, we made a fresh puncture. Two patients treated in this manner died of spinal meningitis.

Suture of the Sac.—We owe this method to Dr. Dubourg, who published two successful cases. An elliptical incision was made over the tumour, and the finger at once placed over the opening to prevent the entrance of air, and the wound united by the twisted suture. We have had occasion to perform this operation three times in the lumbar region, using the quilled suture, and three times our patients died of spinal meningitis, with pus and flakes in the vertebral canal. We adopted a plan which consisted in pinching the sac in a vertical direction by means of two pieces of catheter placed laterally and strongly tightened at their extremities, but the result was inflammation and death, on the next day, from spinal meningitis. Following the example of M. Dubois, we passed two pins into the base of the tumour; and beneath their extremity we passed the ends of catheters firmly secured together. Two days afterwards, ulceration of the tumour occurred, with inflammation of the sac, cerebral symptoms and death.

The injections proposed by Dr. Brainard of the United States were at first made with distilled water, four ounces; iodine one-fiftieth of a grain; and iodide of potassium, one-fifteenth of a grain. The strength of the solution was gradually increased. He reported several successful cases from this plan of treatment. Each time he took the precaution of only injecting into the sac, and used sufficient compression to prevent the fluid from entering the vertebral cavity. MM. Velpeau and Chassaignac have employed these injections with tincture of iodine diluted with water, as if for hydrocele; and the latter exhibited to us one successful case. We have not employed this method. We have been partial

to the use of punctures and compression, as advised by Abernethy and Sir Astley Cooper, making very small punctures with a needle, and only in cases in which the tumours are not of large size, are not painful, inflamed or fistulous, and especially if they are small and pediculated.

In these cases, and when the fluid is easily reduced by pressure, there are some very rare chances of success, and by continuing compression for a long time, we find the tumour subside and remain in the condition of an empty sac. Sometimes the tumour becomes buried, and presents a kind of umbilical depression. By this means we have seen several patients live to twenty and twenty-five years of age.

CHAPTER LVI.

TONGUE-TIE.

THE term filet or frænum of the tongue is given to the mucous fold, which extends from the inferior surface of the tongue over the genian process. This fold is vertical, and more delicate above than below and behind; it is triangular, and its anterior border becomes prominent when the tip of the tongue is carried to the palate, and its inferior border is fastened on the floor of the mouth. When the frænum is of the normal dimensions, it serves to retain the tongue, but in such a manner as to allow it to be moved and to apply itself on the arch of the palate, and to escape from the mouth sufficiently to be able to project the tip of that organ in front of the lips, and to carry itself to the right and left in the cavity of the mouth, and to move itself on the inner surface of the cheeks inside and outside the dental arches with facility.

When all these movements are practicable, the frænum is in its normal condition, but when the child comes into the world with a frænum which does not allow of these different movements, there is a malformation, which is sometimes met with, but much more rarely than is generally supposed. Usually, we find the tongue carried with difficulty to the palate, so that the child cannot embrace the nipple with it, and sucking is difficult of accomplishment. We may assure ourselves of this difficulty by placing

the little finger on the dorsal surface of the tongue; then, if the latter can advance, it embraces the finger, and will make efforts at suction, which show that the child can take the breast. Otherwise we may fear that the frænum is not properly formed, and then, by endeavouring to pass the finger under the tongue we discover that it is retained by this contracted band. If we raise the tip of the tongue, we discover that it is fixed over the floor of the mouth, because the frænum is scarcely prominent, and it retains the tongue below, and is confounded with the floor of the mouth. In such a case, the mucous membrane is not formed in such a way as to make this sublingual fold, and prevents or impedes the movements of the tongue. Hence arises the necessity of making a division of the frænum, especially if in addition the nurse is in good health, and her nipple well developed.

The operation for division of the frænum, which is very simple, should then be performed. We notice, in raising the tongue, a fold formed by the arrangement of the two layers of mucous membrane of the floor of the mouth, which advance towards the inferior surface of the tongue to form a delicate transparent fold, but this is not carried sufficiently close to the tip of the tongue to allow of the different movements of that organ. Under these circumstances, we employ two fingers to hold the tongue up, and we make a division of the frænum engaged between the two fingers which, by pressing upwards, separate it from the vessels of the floor of the mouth, or else we engage the frænum in the fenestrated plate of the grooved director, so as to stretch the frænum while isolating the vessels. A single cut of blunt-pointed scissors, directed backwards and on this mucous band, will divide it. We must also protect the veins and arteries, visible likewise under the mucous membrane of this region.

There is another case in which the frænum is not at all visible, and it appears that the tongue is not detached from the floor of the mouth. In such a case, we must, while having the child's head held by an assistant, introduce the plate of the grooved director under the tip of the tongue, in such a manner as slightly to engage the mucous membrane corresponding to the inferior surface of the tongue. Then, in place of a single cut of the scissors, we must make a small incision and others in succession, gradually raising and slowly dissecting the inferior surface of the tongue, especially endeavouring

to see the vessels, which may be exposed as we prolong backwards the cuts of the scissors.

This operation of the division of the frænum of the tongue, which should not be made in the normal state, should be most often performed at birth to facilitate suckling. We have operated on children at the age of two years who spoke imperfectly, without however stammering, and who have been benefited by the operation. I do not confound these two operations with those which I have practised, unfortunately without success, in children who were really stammerers; in them I even cut the genio-glossi muscles without any result, several surgeons hoping, by this procedure, to cure the stammering. But we abandoned this kind of operation, when we found after practising it for eight or ten times, that it did not give the result hoped for, and that, besides, we once or twice had serious hemorrhage, which we have reported in the journals.

As a general rule, the division of the frænum is performed without any accidents, and with scarcely any hemorrhage. Nevertheless, we have sometimes met with recurrences, retraction of the tongue, and hemorrhage.

1. *Recurrence.*—To prevent this accident, we suggest, and we never fail to have recourse to it, the passing morning and evening, for two or three days after the operation, of the little finger beneath the tongue to prevent adhesions after the division. This is sufficient in ordinary cases, but if the frænum is thick, and cicatrization tends to approximate the lips of the wound, it will be well the next day, or the day after, to touch the angle of the wound with a pencil of nitrate of silver, as suggested by M. Hervez de Chegoin.

2. *Retraction of the tongue.*—J. L. Petit cites cases of suffocation produced by the tongue being carried abruptly over the pharynx after division of the frænum; but we have not seen any such cases. Petit refers to several in which the tongue was brought into place with the finger, it having been pulled backwards, making a valve over the orifice of the larnyx. He retained it by means of a bandage after having restored the tongue to its position. When this was removed, the accident again occurred, and the child died as if it had been strangled. In a like case, it would be of the greatest importance to retain the tongue in place by a thread passed through the thickness of that organ, and this must be secured

outside of the buccal cavity by means of a thread secured to the child's cap.

Petit cites the case of a child in which without division of the frænum, the tongue tended to be carried backwards; it fell several times in an hour attacked with suffocation. In such a case, which is perhaps but seldom met with, it will be advisable to secure the tongue rather with a thread than with a bandage, as advised by J. L. Petit. The use of the thread, prolonged for twenty-four or forty-eight hours, would give more security.

3. *Hemorrhage.*—This accident is rare, and yet it has been known for a very long time, and many methods have been devised for arresting it. Although generally of a serious character, and yet but little feared by surgeons, and indeed but little to be feared, it has nevertheless been the cause of death. There are examples of it in the older authors, and on this subject a treatise on division of the frænum by M. Ferdinand Teissier, offered at Paris in June, 1866, may be consulted with advantage. A recent death from this operation in a hospital only confirms the fact that the accident may occur even to men of skill.

To prevent these hemorrhages, which are doubtless met with in children predisposed to them, it would be very desirable if we could distinguish at birth those children who are naturally disposed to hemorrhage. We have observed several such cases, but at a more advanced age. In the new-born, when we fear the occurrence of hemorrhage, we must postpone the division of the frænum. In any event, to prevent this accident, we must, in the division of the frænum, redouble our precaution and not look upon this operation as one of trifling importance. We cannot, therefore, repeat too often, that we must hold the child securely, the head especially; with the left hand hold the grooved director, elevating the tongue, engaging the frænum completely in the opening designed for this purpose; it should, when pressed from below upwards under the inferior surface of the tongue, cause the frænum to project, and protect the vessels which are distributed under it. It is very important to cut the frænum, as we have already said, by directing the point of the scissors downwards. If the hemorrhage is slight, it ceases, as do the child's cries, when it is given the breast, but if it continues, we may pinch the point from which the blood comes by means of a small spring forceps, which may be kept for some time in place, or else, as practised by M. Verneuil, use a

strong serrefine retained by a thread passed through the ring. But we prefer placing under the tongue, and keeping it compressed with the finger for several minutes, a piece of agaric steeped in lemon juice, or better still perchloride of iron diluted with water. If these remedies do not succeed, we must, without using styptics, powders, or nitrate of silver, so difficult to apply properly and with which we lose so much time, raise the tongue as at the moment of operating with the plate of the grooved director, have the head held very immovable, endeavour to distinguish the point from which the blood flows, and boldly apply a stylet heated to a white heat, with the extreme and indispensable precaution of keeping the lower lip depressed with a soft linen compress or a spatula.

CHAPTER LVII.

PROLAPSUS OF THE URETHRA.

SURGICAL works, even those which treat specially of the urinary passages, have little or nothing at all to say of prolapsus of the urethra, and yet it is not a very uncommon affection in little girls. I have seen at least a dozen or fifteen cases of it, from the age of two to twelve, in twenty years of hospital and private practice.

Causes.—The causes we have been able to discover are repeated efforts, either of coughing, as in the violent paroxysms of hooping-cough, or chronic bronchitis with frequent cough, or constipation necessitating violent and repeated efforts of defecation, or general debility. We have also found instances of this procidentia of the mucous membrane of the urethra in small girls debilitated from various causes, principally in cases of very long convalescence, as the result of acute diseases, and often in chronic affections.

Symptoms.—Children, as a general rule, do not complain much of this affection; nevertheless, they have frequent desire to make water, and they experience a sensation of heat during the discharge of urine. As this disease does not always cause pain, and the children do not complain, a long time may elapse before we examine the vulva, and only by inspection of this part can an accurate diagnosis be established. Then, if we separate the labia, we

generally find the vulva with more colour than usual. If we examine the meatus urinarius, we observe a small, rosy, mucous tumour, which appears to escape from the interior of the canal, and is not at first very considerable. It presents in its centre an opening, in which a catheter may be introduced; but we find that we enter the centre of a ring of variable size, formed by the mucous membrane of the canal of the urethra. If we push the catheter further, we soon penetrate the bladder and the urine escapes.

This condition may last a long time stationary without becoming aggravated; but at other times the tumour is developed slowly, with an exudation of blood, and soon afterwards purulent serum. It increases in size and is irritated on its surface, which becomes gangrenous superficially, inflaming the neighbouring parts, and producing vulvitis. The discharge may increase without causing great pain, but there is heat and smarting when the patient urinates. We have not seen any of these tumours that had been left to themselves for a very long time; but we think they might gradually become either wholly or partially gangrenous, and keep up a sero-purulent discharge.

We may confound these tumours, formed by the prolapsus of urethral mucous membrane, with polypus of the urethra, but by carefully examining it, we find that the polypus appears under the form of a small tumour, with more or less pedicle, the latter penetrating into the canal, whilst prolapsus is presented in the aspect of a very small ring surrounding the urinary meatus, and resembling, on a small scale, prolapsus of the mucous membrane of the rectum.

This affection, which is not serious, may occasion inflammation of the vulva; and may lead children to handle the parts frequently on account of the itching.

Treatment.—It is advisable to relieve little girls of this affection, and by excision restore them speedily to their normal condition. Other means, such as ligation or cauterization, only enable us very slowly to destroy the prolapsus. To perform this excision, there is no necessity to chloroformize the patient; nevertheless, as little girls are often timid and quite hard to hold, we derive benefit from giving chloroform. We place the child on the edge of a bed, keeping its thighs flexed and separated; the greater labia being then held in such a way as to let us clearly see the tumour, we

seize it with a portion of thread, which allows us to draw it out gently, and curved scissors carried behind it enable us to remove it at a single cut. We may also with the left hand, armed with a tenaculum, draw it forwards, without employing the thread, and then cut it from behind.

There will be a little hemorrhage, which the application of cool water may check, and which may be arrested with the perchloride of iron diluted with water, or else by a small tampon of agaric steeped in this mixture, and applied for several minutes on the wound resulting from this excision. Washes of cool water, and a few applications of a pencil of nitrate of silver suffice to procure cicatrization of the wound. The little patients suffer for a few days in urinating, but this does not last. In one of our cases, a hemorrhage occurred which we could not arrest with the perchloride, and we had, therefore, for twenty-four hours to keep a bladder, filled with ice, over the hypogastric region, and in front of the vulva. This last method succeeded perfectly. In this little girl, ten years of age, the tumour dated from about the age of four, and was raw before the operation.

CHAPTER LVIII.

PEMPHIGUS.

THIS is a cutaneous affection, characterized by one or several rounded bullæ, about a third of an inch in diameter, more or less distended by a fluid, which is at first transparent, but gradually becomes cloudy. It occurs in children as well as in adults, being seen quite often in the new-born, and exists either in the acute or the chronic state.

Causes.—It may be developed in children of imperfect nourishment, kept in an unclean condition, but more frequently in those under the influence of hereditary syphilis. This is the opinion of M. P. Dubois and some others, and it is shared by MM. Ricord and Cazenave.

Symptoms.—This affection is generally situated in the palms of the hand or the soles of the feet in children, and is presented in the

form of bullæ or pustules, which vary in number, are surrounded with a violet aureola of very variable diameter, and contain a seropurulent fluid; there is pain and sensibility to the touch, the epidermis becomes raised and the derma may be ulcerated and sometimes covered with a plastic membranous deposit, and suppuration may also occur. The edges are sometimes rounded and in relief.

If the pemphigus is simple, the bullæ are distended with a clear or opaline serous fluid, and are followed with desquamation, the epidermis dries off in delicate lamellæ, the pain ceases, and in a few days the disease terminates. We do not meet with ulcerations, and there is no other phenomenon on the skin; but in syphilitic pemphigus, the bullæ are filled with a well-formed yellowish pus, and ulcerations follow. The child also presents other syphilitic symptoms, as spots, specific roseola, a general condition of emaciation and decay, and alteration of the countenance, which becomes pale and thin, with the appearance of old age, and remarkable wasting.

The *prognosis* is of very little gravity in the simple form of pemphigus, but, on the contrary, serious in the syphilitic variety, for this localized phenomenon on the skin may sometimes be complicated with syphilitic lesions of internal organs. When the disease is simple, it may last for several days or for several months, and sometimes there are prodromic symptoms, as in certain acute diseases, measles, scarlet fever, etc. It may indeed pass into a chronic condition and terminate in a serious manner, while sometimes it is of no gravity. In syphilitic pemphigus, however, this disease, which is often congenital, is met with in children born of syphilitic parents. In addition to this, there are several known cases of pregnant syphilitic women who had pemphigus, and were placed on an antisyphilitic treatment after a first delivery, and afterwards gave birth to children who were free from pemphigus, thus proving satisfactorily the syphilitic nature with which the mother was affected at the first delivery, and was cured at the second.

Treatment.—If the pemphigus is not of the syphilitic form, a very simple local treatment answers the purpose. Thus, for simple pemphigus, it is often sufficient to content ourselves with attention to cleanliness, bran baths, or application of powder of starch or rice flour over the bullæ, good nourishment, and placing in a pure air those in whom the affection has been developed through want of care. In such cases the bullæ are only a local disease.

If, on the contrary, the affection is of a syphilitic nature, or the bullæ are only a local symptom of a constitutional disease, it is a very grave medical affection, the true treatment of which lies in the employment of general antisyphilitic remedies. If the mother herself nurses the child, we must put her on antisyphilitic treatment, using either the liquor of Van Swieten or the bichloride of mercury; if the child derives its sustenance from a nurse, she should be forewarned of the chances which threaten her, and she should be put under treatment. When it does not get its milk from the breast, we should put the child itself under treatment, administering five, six, or eight drops in the day, in divided doses, of Van Swieten's solution, in a small spoonful of milk, and, in addition to this, baths medicated with this solution, a drachm or more of it being added to the bath of a new-born child. The child may also take for nourishment iodized milk, either from a cow or from a goat treated according to the plan of our confrère M. Labourdette, especially if we believe there are syphilitic lesions of internal organs.

CHAPTER LIX.

THORACENTESIS.

We have not had traumatic cases requiring in children thoracentesis, an operation which consists in opening the chest to give outlet to fluid effused in the pleural cavity. We have almost always found effusions consequent on contusions of the chest or fractures of the ribs easily absorbed. Nevertheless, in young subjects, as in adults, effusions consequent on pleurisy may require puncture of the chest, in acute as in chronic cases.

As a general rule, this operation is indicated in children, when medical means have not been sufficiently powerful to obtain resolution of the effusion, or even when, from the commencement, there is a threatening of asphyxia. Two cases then present themselves: either the fluid is circumscribed at one point, which rarely occurs, or else the space between the pleura costalis and pleura pulmonalis is completely filled up. If the effusion is circumscribed, it is the situation in which we detect dulness and the absence of respiration

which will be chosen for the operation; but when the effusion is general through the right or left cavity, we must then operate at the point of election.

Operation.—As this is not very painful, we do not entertain the question of employing chloroform, but content ourselves with having the child well held. We are far from rejecting certain well known trocars, those with a spout, the trocars of M. Guérin or M. Barth. They have undoubted advantages, but as a general rule we use either an ordinary trocar or a small curved one, having the form of a tracheotomy canula, except that it has a diameter of an eighth of an inch, and a length of an inch and a half; this enables us to penetrate as far as the fluid, without any risk of touching the lung. It should be furnished with a little goldbeater's skin sac, securely fastened behind the pavilion of the canula, and capable of falling over the outer orifice. We must also, after the example of M. Barth, who has suggested them, have tubes of vulcanized India-rubber, which can fit into the canula. We should also have at our disposal a syringe capable of being well adjusted either to the canula or to the caoutchouc tube, if we think proper to make injections.

The child being laid on its back, and held securely in this position, the surgeon takes the trocar with his right hand, presenting its convexity upwards and its concavity downwards; grasps the skin with the finger of the left hand, in order to prevent the cutaneous wound from being parallel with the deep opening, and plunges at a single cut above the upper border of the left third rib, and the fifth on the right side, counting the ribs from below upwards. The gold-beater's skin previously moistened surrounding the handle, he will choose, as the point of election, the union of the posterior third with the two anterior thirds of the intercostal space, taking care to approximate the upper border of the lower rib, so as to separate the point of the trocar from the lower border of the rib above, where the artery is situated. By means of our curved trocar, he easily turns around the lower rib and directs the point downwards; in this way, if there is but slight space between the bony frame and the lung, he does not risk wounding that organ.

The puncture once made, the surgeon should conduct himself differently according to circumstances. If the effusion is serous, a simple puncture is sufficient to give exit to the fluid, without allowing the air to enter the canula,—thanks to the gold-beater's

skin. As the cavity which contains the fluid contains nothing else, we withdraw the canula, and close up the little wound, which unites by the first intention. In chronic cases, when the effusion is no longer serous, but purulent, we must, after a first puncture, make several others in succession, at several days' interval; and it appears to be well, as M. Barth points out, to wash the surface bathed with pus, to obtain adhesion more easily. Besides, if the pus is fetid, there may be an indication to inject modifying fluids, as tincture of iodine diluted with water or chlorine; and often a single injection does not suffice, and several are required. In such cases, a permanent opening is necessary. The canula with which the puncture was made may therefore be left in place, and for this reason we had our small curved canula made with little flanges like the one used in tracheotomy; and it may, by means of tapes, be fastened around the body, as the tracheotomy canula is secured around the neck.

We prefer to substitute, as rapidly as possible, a vulcanized rubber tube for the metallic canula, for its pliability removes all danger of irritating the pleura, and the tube does not enlarge the wound as the metallic canula does. It may also be subjected to all positions in the thoracic cavity and around the chest; it may be very readily passed into the canula, but before using it we should take the precaution to supply ourselves with tubes of such a diameter that they can pass into the canula of the trocar. We introduce the tube alone, or furnished with a whalebone punch, into the canula, which may be withdrawn as we bury the tube more and more deeply. We must fasten, at the outer extremity of the tube, a gold-beater's skin sac, tied at its opening, so that the fluid which escapes through the tube may discharge into the cul-de-sac formed by this skin; it may, otherwise, be enveloped in a linen pouch suspended at the patient's neck.

When he wishes to make an injection, the surgeon pinches the tube at a short distance from its outer extremity; an assistant removes the gold-beater's skin pouch, and he then introduces the beak of the syringe into the end of the tube and gently throws in the injection. When the quantity of fluid introduced appears to be sufficient, he pinches the tube anew, and then, to discharge the injection, he takes the precaution to put the extremity of the tube in a vessel of water, so that the air cannot penetrate; when he has finished, he withdraws the extremity of the tube from the water,

compressing it again, and fastens it in the gold-beater's skin pouch. When the collection of pus is diminished, this pouch or reservoir may be omitted, and the surgeon content himself with a small plug to close up the tube. This should be secured firmly over the walls of the chest by means of several strips of isinglass plaster or adhesive plaster, the chest being then surrounded with a light body bandage, or a bandage to secure the tube around the chest, so as to prevent its escaping from the thoracic cavity or from entering too far.

When the tube is in the chest, the interior portion must not be too long; it would irritate and might prevent the gradual approximation of the surfaces, and thus retard the cure. It should not be too short, for it would not then penetrate deeply enough to give exit to the fluid. In order to know how much of it is in the chest, we should, as advised by M. Barth, measure the tube before introducing it, and remember its length, so that we may know exactly how much of the tube is inside or outside of the chest. At first, two or three inches of it may be left in the chest, but as the morbid cavity diminishes in extent—a condition which is recognized by the smaller quantity of pus discharged at each dressing, and the amount of fluid which may be injected without effort—we should diminish the length of the tube by withdrawing some of it from the chest each day. When everything goes on favorably, the fluid becomes more and more clear, and diminishes in quantity, and at last a time comes in which only a few drops of pus escape, when we can remove the tube.

By this mode of operating, we have had much success, which follows as a general rule, when the pulmonary tissue is sound or but little diseased. If any tubercular affection exists, the cure is an exception or at least very uncommon.

CHAPTER LX.

ECTROPION.

ECTROPION, or turning of the eyelids outwards, occurs on both lids with many children. Several causes may produce it, some of which are seated in the conjunctiva, as acute or chronic conjunctivitis, others in the skin, or in the nervous system, such as paralysis, or spasm of the orbicularis muscle. In children we have several times found an ectropion the result of tumours of the orbit, and at other times of necrosis of the orbital border at a more or less circumscribed spot. Exophthalmia may also give rise to ectropion. Very often it is caused by a burn cicatrizing with contraction of the lid. Whatever the cause, it presents general characters which cannot be misunderstood.

Symptoms.—These are more or less marked, according to the stage of this affection. At first there is seen a slight separation of the lower lid. Usually the border of the lid is carried forward, and tears escape over the cheek, the lid not being able to retain them. It is often only the commencement of blepharitis. But soon the lid becomes further depressed, tears course the cheeks, the conjunctiva, already reversed and at first healthy, soon becomes inflamed, thickened, and tumefied; the secretion of the tears diminishes, and the cornea becomes more vascular, sharing the inflammation and sometimes becoming gradually ulcerated. This corneal inflammation is due to exposure to the air and the diminution of the tears. Finally, the mucous membrane of the lid, becoming more and more reversed, is covered with granulations. When this disease depends on a burn, the lid is attached to the cheek by the contraction of the cicatrix.

The *diagnosis* is easy, after the symptoms just mentioned, but we should not at once form any *prognosis*, which must be variable, until we become thoroughly acquainted with the cause. Sometimes it is the commencement of a blepharitis or even of an intense conjunctivitis, and is often a phenomenon of purulent ophthal-

mia. The prognosis will, in the latter case, be of considerable gravity, while if we have only to deal with a slight conjunctivitis, the ectropion will yield with the disease which is its cause.

Treatment.—This should be varied according to the cause producing the ectropion. In cases of simple blepharitis or ophthalmia, we must combat them, as we will also have to do with paralysis or tumours of the orbit, which last may require removal.

Two forms of ectropion require a special, and surgical treatment.

Acute Ectropion, with Swelling of the Palpebral Conjunctiva.—This affection, as often met with in childhood, is a condition following upon intense ophthalmia or rather very acute blepharitis. In such cases we must, if the disease does not yield to the treatment advised in blepharitis, make repeated scarifications over the mucous swelling, either with the lancet or with the scissors, while endeavouring to raise the lid, and thus reduce the swelling and the ectropion. We must then keep the lid raised with a bandage.

Chronic Ectropion.—In certain cases the mucous membrane, which is constantly puffed up, is an excrescence, a real foreign body which pushes the lid back and keeps it reversed. It becomes hypertrophied out of all proportion, and can only be reduced by a surgical operation. After having employed different remedies, as nitrate of silver, sulphate of zinc, and calomel, frequently without success, we must adopt the following treatment:—

1. *Cauterization* with nitrate of silver applied directly to the mucous swelling, protecting the eyeball by placing within the swelling a small cylinder of wadding. We may also, after each cauterization, let fall into the conjunctival notch, water very slightly acidulated with hydrochloric acid; and then at the end of an hour remove the small roll of wadding, and apply oil over the part whitened by the nitrate. We next let the lid be raised, and apply repeated lotions of cool water over the eye. At the end of one or two days after the separation of the slough, cicatrization of the submucous tissue commences, and the contraction of the mucous membrane gradually corrects the position of the lid. We may sometimes make a second application, but we must make a proper estimate, before doing so, as to what we have gained, for we should hesitate to produce too rapidly a new cicatrization which would straighten the eyelid too much. If, by means of these cauterizations, which may be several times repeated, the desired result is

not obtained, we must resort to excision, and this we have performed on several children.

2. *Excision of the Mucous Swelling.*—When this remains of considerable size, and becomes covered with granulations, cauterization fails, and excision of this mucous fold may be performed with advantage. There are several methods we may adopt, but, in children, we have confined ourselves to the removal of the exuberant portion of the conjunctiva, having previously administered chloroform. We seize the swelling with a tenaculum or with grasping forceps, and by means of curved scissors remove a portion of it. More or less hemorrhage occurs, and we close the eye in its normal condition, and apply compresses steeped in cool water and held in place by a bandage lightly applied to keep the eye closed.

There is a form of ectropion occasioned by caries of the border of the orbit, which we have often met with in scrofulous children as the result of abscess symptomatic of partial caries of the orbital edge, and the inferior part of the lid is drawn into the diseased part, and becomes fixed there by adhesion, and thus involves the lid, often turning it outwards. In these cases we have performed an operation described in the work of M. Desmarres, and which this oculist regards as being the method of Ammon. It consists in detaching the adherent part by a semicircular incision, following the curve of the orbit, and dissecting the skin in such a manner that it will be movable on the bone; the lower lip of the wound must be brought up towards the upper, and be kept in place by strips, which serve then to retain the skin and to prevent it from sliding towards the point where it is adherent.

There are some cases in which we ought to practise blepharoplasty. When, after a burn, there is adhesion of the lid with or without ectropion, but either the upper or lower lid is incapable of being closed, the eyeball is exposed, and, as may be conceived, this infirmity is repulsive, and exposes the eye to a number of causes of inflammation. We must then perform an operation which has been known for a long time, practised at first by Graefe and still later by many foreign and French surgeons. Following the example of Velpeau, Blandin, and Desmarres, we have had occasion to perform this operation in several children. If we have had two or three successful results, we have also performed it without deriving any such advantage. We have operated either on the lower or on the upper lid, and we have adopted three

methods of operation, according as one or another appeared most applicable to the case, either by extension of the flap, or by inclination or torsion.

In two cases of burns with vicious cicatrices of the upper lid, we performed autoplasty, taking a flap over the temple, twisting the pedicle, and bringing it back over the upper lid, after having made a dissection, which removed the narrow cicatrix that kept the lid elevated and reversed upwards as far as the lash. We twisted the pedicle of our flap, which was near the outer angle of the eye, and made several stitches to fasten this flap on the eyelid, which was still provided with subcutaneous cellular tissue and a part of the orbicularis palpebrarum. We found the flap healing up, and were able to divide the twisted pedicle at the end of eight days, and the stitches on the following days. The first operation, which we performed on a girl of nine or ten years, did not succeed; there was no erysipelas, which we especially feared, but the flap became gangrenous and the patient remained as before. A second, operated on in the same manner by torsion, succeeded in our hands, and the eye, which was always inflamed before the operation, on account of the impossibility of covering it, soon returned to its normal condition.

We have only had unsuccessful operations in cases of ectropion after burns; but though the operations failed, there were no serious after-symptoms. After our various operations, we always used cold water during at least seven or eight days in succession, and we checked a few cases of erysipelas at the commencement by the use of elastic collodion.

CHAPTER LXI.

ENTROPION.

WHEN the edges of the lids are turned inwards, with the ciliary border in relation with the eyeball, we have a case of entropion. This affection, which is not repulsive like ectropion, is of a nature greatly to irritate the eyeball, and to produce almost continual ophthalmia.

The *causes* of entropion are numerous; they may be reduced to relaxation of the skin of the lid, contraction of the mucous membrane, a faulty arrangement of the tarsal cartilages, a spasmodic state of the orbicularis, atrophy of the eyeball, and also certain tumours developed in the eyelids or their vicinity.

The *symptoms* are noticed either on a part of the free border of the lid, or on its whole extent, or even on both lids, but most frequently on the lower one only, and chiefly on its outer side. The lashes are turned inwards with incurvation of the tarsus, and the lid is rolled on itself. The vertical diameter between the lids is often enlarged, the conjunctiva of the eyeball red and to a variable extent often thickened. This inflammation extends to the cornea. The patient complains of severe pain in the eye, and experiences inconvenience in looking at objects. If the entropion is partial or of slight extent, it may remain stationary, but if it is very marked through the whole extent of the lid, it may give rise to inflammatory symptoms of a grave and profound character.

Treatment.—This should vary according to the exciting causes. In children we have especially found intense ophthalmia, a spasmodic condition of the orbicularis muscle, relaxation of the skin, and sometimes the presence of certain tumours of the eyelids.

We must treat the ophthalmia, and especially the photophobia which is its true cause; and in such cases, we cannot obtain in children that which M. Desmarres advises for adults, the constant straightening of the lid every moment with the finger, by looking into a mirror. Antispasmodics are indispensable, and are the only means to be used in childhood, mild purgatives being afterwards administered, to be repeated if necessary; and if there be inflammation, we should at once prescribe, for the straightening of the eyelids, either the use of mercurial ointment, combined with extract of belladonna, equal parts of each, by friction, repeated two or three times a day around the orbit; or else the dropping into the eye, two or three times a day, of a drop of solution of atropia, in the proportion of a grain and a half of neutral salt of atropia to three ounces of distilled water. We have derived no benefit from compression or adhesive strips, at least in children.

We have not thought it worth while to employ fly blisters around the orbit. In permanent contraction of the orbicularis, we have not performed subcutaneous division of the muscle as

suggested by MM. Cunier, Philips and Pétrequin. We have not followed the plan of Janson, which consists in transverse excision of the muscle, nor the vertical section likewise proposed by Janson.

In relaxation of the skin of the lid, the treatment should be purely surgical, and, as a general rule in children, we have been satisfied with cauterization or excision. We have employed for cauterization, after chloroformizing the patient to prevent movement, either the actual cautery or Vienna caustic, applied by means of a piece of fenestrated plaster at the spot where the caustic paste should be spread. We have, in these cases, endeavoured to produce a transverse slough at the distance of an inch and a quarter to an inch and a half from the free border of the lid, in the form of an elongated melon-seed, more or less narrow at the centre, according to the extent of the reversal of the lid. We allow the slough to become detached naturally, and the cicatrix, being formed beneath, corrects the position of the edge of the lid generally in a satisfactory manner.

By excision, according to the plan of Celsus, as a general rule, after having put the child under the influence of chloroform, and having previously estimated the amount of skin of the lid to be removed, we seize a fold of skin of the shape referred to in the application of the caustic. This fold, of the shape of an elongated melon-seed, which we may seize with a convex spring forceps, or else raise up, either with forceps or with a double tenaculum, is excised by a single cut with the curved scissors.

We have had afterwards the same result as with caustic, and we can, immediately after excision, apply two stitches, and union will take place very rapidly. We will do well, if we take excessive care, in this little operation, before operating, to trace with ink the extent and shape of the portion of skin we wish to remove, to guide the action of the scissors. We have also followed the method of M. Velpeau; we raise with the fingers or the forceps a transverse fold, piercing the base of this fold with three needles, at about two-fifths of an inch distant, each furnished with a long thread, and excise with the scissors the fold, a short distance in front of the threads, taking care not to cut them. In this manner, after the excision, we have to concern ourselves with three stitches. Immediately after the operation, we must apply compresses steeped in cool water and frequently renew them. We have had success in

this mode of operating, and we have often had benefit derived after excision, from the closing of the eye, applying a soft compress retained by a bandage in such a way as to keep the lips of the wound united without using stitches, which may sometimes produce erysipelas of the face.

We have also derived benefit from the use of three serres-fines instead of three stitches, applied for the purpose of approximating the lips of the wound of the lid.

CHAPTER LXII.

TRICHIASIS.

This disease, characterized by reversal of the eyelashes, is sometimes observed in children. The lashes are brought into contact with the conjunctiva and even the cornea; the tarsal cartilage is not turned around, and yet the trichiasis, like the entropion, is often met with in the lower lid, and may produce ophthalmia. Sometimes this turning in is only observed in a few lashes, at other times in all the lashes of the affected lid.

The *causes* are glandular blepharitis, inflammation of the glands of Meibomius, burns, and relaxation of the skin, and in children ophthalmia very often repeated, complicated with photophobia. We sometimes also find a second row of lashes acting as an exciting cause, but this is seen in adults rather than in children.

The *symptoms* are nearly always those of entropion; trichiasis may produce inflammation of the mucous membrane of the eye, keratitis, even ulceration of the cornea, opacity, or pannus, caused by the development of vessels extending in the form of a pencil over the cornea. Children suffering from trichiasis have a vicious position of the head, which is curved forward on the neck, and this is produced by the habit they have of inclining the head while looking at objects. The diagnosis is easy; the prognosis quite grave, for trichiasis produces, as we have already said, serious affections of the eyeball.

Treatment.—The treatment includes the reduction of the lashes; and of all the agents proposed, we prefer the use of serres-fines

with or without sharp points, which only pinch up a transverse fold of the lid, in such a way as to reverse the border of the latter, at first for twenty-four hours, and then a longer period, if necessary, but allowing the child to repose for a greater or less time, and recurring to them several times at intervals. Plucking out of the lashes has been advised, but this is troublesome and painful to accomplish. It may be done with blunt non-cutting forceps, which enable us to seize the lids without breaking or cutting them. This method, however, only relieves the deviation for the time being, and should be frequently repeated.

Without referring to several plans which we have not followed, such as extirpation of the free border of the lid, or a portion of its extent, or cauterization of the bulbs of the lashes, we may reduce the operations for the cure of these devious lashes to the following: plucking them out, when two or three of the lashes are reversed; excision of the partial fold, or of the whole fold of the anterior portion of the skin of the eyelid, as in entropion; or extirpation of the bulbs of the devious lashes, according to the method of Vacca. We may make a fold of the skin of the lid involved with the devious lashes, and excise this fold as far as the orbicularis muscle, afterwards dissecting the bulbs with a pair of forceps. In such cases, we must support the lid by means of fenestrated forceps, held firmly by an assistant. With children we must use chloroform.

After these operations, a dressing by means of compresses steeped in cool water should be frequently renewed, until the cicatrization of the little wounds occurs.

CHAPTER LXIII.

NASO-PHARYNGEAL POLYPUS.

In attending the surgical service in a children's hospital, we are struck with the fact that we never, or scarcely ever, meet with mucous polypus in the nasal fossæ. They present, however, the same symptoms, and require the same treatment as in adults. In children, we sometimes see fibrous polypus, but usually only in

those of ten or twelve years of age, the smallest children being, as a general rule, exempt from it. These polypi, of a more or less considerable consistence, firm, sometimes bleeding, present varying prolongations, and rarely have a pedicle. They generally take their origin at the base of the cranium, over the basilar process to the inner side of the pterygoid processes.

The *causes* are obscure, as they always are in abnormal productions.

Symptoms.—These polypous growths exist in a latent state at the commencement, which may last for some time, and they become developed slowly. Gradually they acquire sometimes considerable dimensions, and invade the nasal fossæ, becoming developed from behind forwards. They produce irritation of the nasal mucous membrane, and affect the smell and the voice, as well as the secretion of the tears, audition, respiration, deglutition, and even mastication. Some of them become developed from above, and raise up the floor of the orbit in such a way as to push the eye forwards. Sometimes when this is observed on both sides, the eyes project like those of the batrachia. A polypus has been found to elevate the upper wall of the orbit, compressing the brain and producing cerebral symptoms. When they acquire a development backwards, they depress the velum palati, and may descend into the pharynx, and compress the Eustachian tube. If they spread outwards, they penetrate the maxillary sinus, pressing down the arch of the palate. The bone then becomes thinner; the portions of bone involved are destroyed, the cavities are dilated, and give way before the development of the polypus. When these tumours grow over the larynx, there are attacks of cough and suffocation.

The *diagnosis*, at first difficult when the affection is at its commencement, admits of no doubt as to its character as it grows, and the disease is not difficult to recognize, especially when, independently of the symptoms referred to, it reaches the opening of the nasal fossæ or the pharynx. By the sight and touch we can then easily recognize it.

Treatment.—This affection may, in certain cases, produce serious symptoms, and the indication is to relieve the child of it, as we would the adult. We have resorted in them to evulsion and to ligation and excision, sometimes without preliminary operation, at

other times preceding the excision with preliminary operations, and sometimes cauterization to make the operation complete.

Evulsion has always seemed to us to be indicated in very rare cases of fibrous polypi appearing in the nasal fossæ, springing from the base of the cranium, and not having any prolongations to retain them too strongly. We have been able to remove them, and every time they thus present themselves, we believe we should content ourselves with plucking them out by means of various forms of straight or curved forceps. If the polypous growths have a pedicle, and we can circumscribe it, the indication appears to be to ligate it by the aid of different serre-nœuds, and chiefly those of a chaplet shape. We should, whenever we can, through the opening of the nasal fossæ or the mouth, direct scissors with blunt points over the pedicle of the polypus, prefer excision to ligature, which latter has the inconvenience of only slowly relieving the patient of the tumour, leaving him for perhaps a long time with a strangulated polypus, that may become fetid and give rise to other symptoms.

But frequently we must resort to several preliminary operations to facilitate the execution of measures for the removal by a cutting instrument, and the destruction by cauterization, of the point of insertion of the polypus. We should sometimes be contented with dividing the postril; we may even divide the nose, separating the proper bones of that organ, and whenever we can, while thus operating, should resort to these methods, which may be effected more easily in children than in adults. At other times, we may practise section of the velum palati only, and by this incision, we may, as M. Guérin advises, by introducing one finger, and even two, in the mouth, carry the instrument over the point of insertion of the polypus. Then, with a straight rasp, introduced through the nasal fossa as far as the insertion of the polypus, and guided by the finger introduced through the mouth, we may scrape the portion of bone in which the polypus is inserted. In admitting that this method may be employed in the adult, we doubt its applicability to a child.

In concluding our remarks on these grave operations, we may speak of those disfiguring operations on the face, which have been advised, and which we have practised, for the extraction of these naso-pharyngeal polypi. As all surgeons have been able to convince themselves, the principal insertion of these tumours is at

the base of the brain; the other points of insertion are really only secondary, and not at all firm and resisting like that from which the tumour takes its rise.

Let us now examine rapidly the previous operations which should be performed for the purpose of exposing the base of the tumour, so that we can properly attack it. We may, and should, in certain cases, confine ourselves to dividing, more or less boldly, the velum palati, by which incision we may sometimes introduce curved forceps, seize the polypus, and tear it out, twisting the pedicle, and with the finger carried deeply through the nostril aiding the removal of the polypus from the interior of the nasal fossæ.

In other cases, we may cut the velum palati, and make a resection of the bony portion of the arch of the palate, as suggested by M. Nélaton, which may be done by at first perforating the arch of the palate right and left with a punch, and cutting the intermediate portion of bone with a Liston forceps. We thus remove the middle part of the bony arch, and a part of the septum. In this way we may see the base of the skull, and feel the insertion of the polypus without disfiguring the face. For this operation, we must take the precaution to have the hot cautery, either to arrest hemorrhage, or to cauterize the point of insertion of the polypus after having excised it. Resection of the lower jaw may be performed when the polypus is of large size, and it has several branches in the pharynx, the nasal fossæ, and the maxillary sinus. It has been suggested (Flaubert, Jr., Dupuytren, Robert, Maisonneuve, Lisfranc) to remove, as a preliminary operation, the superior maxillary bone. This operation has been systematized, and it is described in all the treatises on surgery. We had occasion to perform this on a child twelve years of age, and we had a favourable result at the time, but there was a rapid relapse after several cauterizations, either with the red-hot iron, or with the *caustique Filhos*. At the end of two years, he was operated on again by one of our professional brethren.

Any operation that may be adopted, that requires the gouge, mallet, shears, and chain saw, is tedious and laborious, and jars the patient's head very much. Whichever plan be adopted, either that of Gensoul or of Velpeau, or others modified subsequently, we must, after this preliminary operation, always act on the point of insertion of the polypus, either with iron heated to a white heat, or with the variety of Vienna caustic, known as *caustique Filhos*,

even after having excised and scraped the point where the polypus has taken root. The operation of M. Nélaton, which consists simply in the resection of the arch of the palate, enables us to expose sufficiently well the point of insertion. It should often be preferred as being a less frightful operation. Finally, if we wish to obtain definite results in these operations, we must not delay cauterizing for any length of time the point of insertion. Otherwise a recurrence is infallible.

CHAPTER LXIV.

ONYCHIA.

ONYCHIA is an inflammation of the matrix of the nail. It is met with, in children as in adults, in the great toe; it is seldom seen in the other toes and quite rarely in the fingers.

Causes.—These are sometimes scarcely appreciable; and we may regard this affection as produced by the lymphatic constitution. Usually, however, there is a puncture or pressure at one point of the matrix of the nail, chiefly on the internal border of the great toe, and this happens from cutting the nail in such a manner that a point of the nail punctures the ungueal matrix, or when the under part of the nail is punctured either with the points of the scissors or with a corn-cutter, or even with a pin. We have seen, in children, punctures with a pin under the nail produce inflammation of the matrix, or at least an inflammation under the nail, followed by vegetations analogous to those of onychia. Most frequently very tight shoes, which press upon the great toe, cause this affection.

Symptoms.—At the commencement, there is slight pain in walking, and gradually redness over the inner angle of the nail, with ulceration of the skin which is pressed upon by the edge of the nail. A fungous vegetation is developed, which is very sensitive; then the pain is such, that the patient walks with difficulty when he puts the heel on the ground. He may cut the corner of the nail which is buried in the proud flesh, and in this manner experience momentary relief, but the pain soon reappears, the

granulations cover in the form of a swelling the internal edge of the nail, and produce angeioleucitis on the inside of the leg and the thigh, and frequently adenitis in the region of the groin. The disease gradually extends, and the nail becomes movable; there is an oozing of sanious matter, which becomes more and more abundant and fetid, and then the pain increases in intensity. We have seen analogous vegetations become developed more rarely in the fingers, but producing symptoms like those met with so often in the great toe.

The presence of the nail being the cause which, by its pressure on the ulceration, keeps up the mischief, we must operate on the nail, either by correcting its position, or destroying it by caustics, or extracting it. Nevertheless, when the disease is at its commencement, before resorting to operations, we derive benefit from preventing the children from walking. Emollients must be applied at first, if there be pain, but we must also employ, as speedily as possible, tonic foot-baths; at the same time urging the importance of the patient wearing properly-fitting shoes, which do not press on the toes. When the disease is more advanced, and ulceration occurs, we must adopt some mode of modifying the position of the nail,—caustics, and even extraction.

Modifying the Position of the Nail.—This method, which prevents the edge of the nail from compressing the granulations, which sprout from the ulceration, consists in raising the ungual border with the extremity of a spatula or the point of a scissors, or with some other firm substance; but we must then either push charpie under the nail, repeating this every morning, or introduce a small metallic malleable plate of tin or pewter (Desault's method) and secure it with a bandage. Besides these modes of treatment, which are very painful, and should be employed for a long time and daily, we must also excise the fungous growths or repress them with nitrate of silver. This last method is an excellent palliative, and sometimes produces a cure.

Cauterization of the Granulations.—We prefer this plan, which has quite often succeeded in our hands, to the one just mentioned. It is painful, but we may anæsthetize the toe on which we operate, by surrounding it with a little sacket of pounded ice; the pain is then less acute, and we may, almost without producing any, excise the granulation, or cauterize it with the nitrate of silver or powdered alum. To obtain a good result from these cauterizations, which

should be repeated several times, at three or four days' interval, we must carry the pointed extremity of the pencil even under the nail, always using ice to prevent the pain, which is very acute.

With this mode of treatment, we have noticed that emollient baths and applications were more injurious than useful. We therefore prefer slightly warm foot-baths in tonic liquids, as infusion of walnut leaves, wine and water, water slightly alcoholized at first, and afterwards still more so; and we may conclude the treatment with sulphurous baths diluted with simple water. We have thus perfected several cures, by especially advising, after this treatment, the use of broad shoes, keeping the toes well separated from each other.

We have also practised cauterization, as already suggested, with Vienna caustic on the swelling formed by the fungous growths and on the portion of the nail which enters into the flesh. In this manner the slough invades the portion of ingrown nail and the fungous growth. When the cauterized portions become detached, there remains a wound which cicatrizes slowly, and which may be directed in such a way that the portion of nail which grows out passes above the cicatrix which is formed.

Extraction of the Nail.—This method, by Dupuytren, is the most certain, and has often succeeded in our hands. It is very painful if we do not employ general or local anæsthesia, but it gives a very expeditious and often very effective result. We prefer it to other methods, and have often used it in children, either administering chloroform or applying ice over the affected toe. In this manner we produce but little pain, and if we then carefully apply simple dressings, we find a nail of new formation covering well, but slowly, the ungual surface. This gives time to the ulcerated part, dressed with tonic fluids, to cicatrize firmly, and besides, as a general rule, does not allow the nail to grow in anew. We consider this method preferable for children; it causes, it is true, acute pain, which may be avoided by anæsthesia, but we thus especially avoid subjecting them to those painful dressings required by the other methods previously detailed.

As a general rule, we follow in this operation the plan of Dupuytren. We pass under the middle portion of the free border of the nail the point of a branch of straight scissors, which we introduce rapidly flatwise as far as the root of the nail, turning the edge upwards, and with a single cut dividing the nail into two

parts. We seize the ingrown part with strong dissecting forceps, and forcibly extract it, rolling it on itself from within outwards. We often remove the other portion of the nail in the same manner.

We may, without thus extracting the nail, as Raymond of Toulon has advised, cauterize deeply with red-hot iron the whole of the skin sorrounding the base of the nail, and thus have the nail detached with the slough produced by this method. The nail is less likely to grow out again, for we destroy the matrix, which does not occur in the operation for extraction.

After these different operations, it is important to dress the wound with cold water, and to wait until the cicatrization of the ungual surface is firm and it no longer suppurates, to enable the subject of our operation to walk. Time is always needed for the new nail to be complete; or, if the nail does not return, the exposed part offers a perfect and solid cicatrization.

CHAPTER LXV.

ABNORMAL CICATRICES.

WITHOUT speaking of malformations, congenital imperforations of natural openings, as of the nostrils, the labia, the anus, etc., or adhesions of the fingers and toes, we find in children many vicious cicatrices, characterized by the existence of a fibrous tissue, called by Delpech the inodular tissue. They may be prominent, adherent, depressed, or obliterating.

The *causes* are, as a general rule, wounds, scrofulous ulcerations, and burns, so frequent in children.

Abnormal Cicatrization after Wounds.—In children, as in adults, wounds may be followed by cicatrices of a more or less vicious character, and this often depends on the nature of the wounds, sometimes on the manner in which they are attended to from the beginning, and the circumstances which may complicate the treatment. Vicious cicatrices may be especially met with in wounds attended with loss of substance, in which nature always tends to approximate the edges. Thus, in a wound where a portion of the skin or of the subjacent soft parts is carried away, the cicatrix, left to itself, will

be more or less contracted, and will bind down the part on which it is seated, in such a manner as to impede the movements, either in extension or flexion. Thus, in connection with the ginglymoid articulations of the knee, of the elbow and the phalanges, we may observe wounds of this kind. We have seen children with a wound on the anterior part of the knee, incapable, especially if there be loss of substance, of exerting movements of flexion without constantly tearing the cicatrix; and when the wound was on the opposite side, of executing extension.

The method of preventing vicious cicatrices, which we must practice in advance, consists in the mode of treatment of the wounds themselves. By keeping the limbs as a general rule in continuous extension, or in a state of flexion, we may avoid abnormal contractions, or difficult or almost impossible movement. When these cicatrices, the results of wounds, are firm, we may hope that they will stretch in time, and that there will be no necessity to perform operations to re-establish the movements in the normal condition. In such cases the movements of extension or flexion made gradually may slowly overcome these vicious cicatrices. Finally, at the end of quite a long time, we may under some circumstances be compelled, for a flexed limb, which cannot be extended, to perform operations, as in the case of contractions from burns connected with the ginglymoid joints. Small wounds of the face are often met with, which have recovered with a vicious cicatrix, consisting only of a black tint through the whole extent or a portion of the cicatrix, as in powder wounds from cannon. We must not forget that the colour of these cicatrices often results from having dressed the wounds with court plaster of a black colour, and that the preventive means consist in only using colourless plaster to promote union of wounds of the face.

Abnormal Cicatrices following Scrofulous Ulceration or Abscess.— We often meet with this kind of cicatrix in children. In them scrofulous ulcers of greater or less extent may destroy a large portion of the skin, on the face or on the neck, and produce loss of substance. These ulcerations are then like burns, and when they cicatrize, if their progress is not attentively watched, contractions occur, which reverse the lids, draw the lip down on the chin, sometimes the chin on the neck, the neck on the chest, etc. To prevent these abnormal scars, we should do everything to obtain broad cicatrices by combating the contractility of the cicatricial tissue, by extending the affected parts in dressings, and by opposing the

efforts of nature, which endeavours always to supply by the cicatrix the loss of substance. When we have been unable to prevent these contractions, they become similar to the contractions after burns, and often require operations analogous to those resorted to in such cases.

We also find in children cicatrices consequent upon spontaneous opening of abscesses, in the form of a swelling of greater or less length and prominence which rises above the level of the skin. These occur especially in the neck, and may be successfully treated by several methods, such as compression with leaden plates or pieces of agaric, excision with scissors and bistoury, and by caustics. Vienna caustic has been especially efficacious, applied carefully over these prominent cicatrices, and in swellings rising above the level of the surface of the skin.

Whatever plan may be employed in these cases, we produce wounds which must be watched with great care to prevent a recurrence. We must compress the new wound so that it may not become prominent, powdering it with alum, calomel, etc., frequently touching the granulations with nitrate of silver. We must do everything to prevent a recurrence, and one of the conditions of success is especially, as suggested by Dupuytren, not to be in haste to operate, the more so as in time these cicatrices occasionally disappear.

Abnormal Cicatrices after Burns.—We find that burns most frequently produce this inodular tissue, which is contractile and has been ably studied by Delpech and Dupuytren. Cicatrices from burns may be observed in all regions. We may counteract these contractions, which are of such frequent occurrence and chiefly in children, by dressings properly applied, by position, by the assistance of bandages and apparatus suitably adjusted, or by opposing the contraction of the wounds; but, in spite of the greatest care, we meet with a large number of burns which terminate with various contractions. Thus we often see inversion of the lids, obliterations of the auditory canal or the nostrils, adhesions or inversions of the lips, inclinations of the neck in different directions, approximation of the arm to the trunk, flexion of the forearm on the arm, turning in of the hand, adhesions of the fingers, adhesions keeping the abdomen closely applied to the chest, the thighs flexed on the abdomen, the penis adherent to the pubis or the scrotum, the greater labia more or less approximated, and abnormal cicatrices in the lower limbs similar to those in the upper.

All these cicatrices are prominent, adherent, depressed, or oblite-

rating. As all of them give rise to difficulty in the movements and vicious positions, and prevent, in children, the development of the parts or movements, the indication is to operate, to prevent atrophy of the limbs in children, and especially to re-establish the functions, remedy obliterations, etc. We repeat, however, that Dupuytren advised that we should not operate too soon, and that we should wait until the cicatrices were firm.

We must often resort to operations which are unavoidable, and which we have had occasion to perform in children. These include transverse incisions and graduated extension or dilatation kept up for a long time, even after perfect cicatrization; the removal of the cicatrix; sliding of the flap, and autoplasty.

Whenever the cicatrices keep the fingers flexed, the hand flexed or extended on the forearm, the forearm flexed on the arm, the internal surface of the arm applied to the body, or the head flexed backwards or forwards on the chest, benefit may be derived from making over these prominent cicatrices, according to the method of Dupuytren, incisions through the contractions, either transversely or obliquely or V-shaped, then stretching the cicatrices thus cut in order to widen the incisions, but making the incision very slowly, more or less deeply, at the same time carefully avoiding the tendons, nerves, and great vessels. We must, as a dressing, employ apparatus and bandages to keep the wound separated during the whole duration of the new cicatrization. This demands a good deal of time and care, and often requires incision of fresh contractions which may be formed.

The method of Delpech, which consists in removing the cicatricial tissue as far as the healthy tissue, is sometimes and even frequently preferable, when we are able to thoroughly circumscribe the whole of the vicious cicatrix, and to approximate the edges of the healthy skin in the opposite direction to the contraction formed by the vicious cicatrix. We have often employed this method when this has been possible, but we have abandoned it in all cases in which we could hardly cover completely the loss of substance, which is to be filled up by following this plan. When we can approximate them we should do so, either by separated stitches, serres-fines or adhesive strips. Whichever method we adopt, that of Dupuytren or Delpech, we have always derived a great deal of benefit from keeping the wounds covered with fenestrated linen and charpie, and finally from constantly subjecting them to continuous irrigation,

only refraining from the use of cold water gradually, and not abruptly.

When, in certain forms of vicious cicatrices, we can make a flap with the cicatrix, and by sliding this we can obtain the proper extension, this method has sometimes succeeded in our hands, by combining with it several transverse incisions through the parts which we could not raise with the flaps.

In vicious cicatrices which obliterate a natural opening, we have always employed multiple incisions; or, by means of the neighbouring skin, we have sometimes made a hem with the skin united to the mucous membrane—the commissure of the lips, for instance. As for incisions, we have made them in the contracted orifices of the auditory canal, the nostrils, meatus urinarius, vulva, and anus, always taking the precaution to employ tents, catheters, and canulas, the use of which may be prolonged for a considerable time. As for autoplasty for the treatment of vicious cicatrices, it should be especially reserved for those of the face and for cases of contractions of the lids.

We have had occasion, in some cases, to treat cicatrices that were depressed and adherent over a bone, in partial osteitis of the frontal and the cheek bone,—in a word, subcutaneous bones. We have then operated with a tenotome introduced under the skin as far as the adhesion, which we divided transversely. By drawing on the skin, we destroyed the parallelism of the adhesion to the bone. In this manner the skin cicatrizes more thoroughly, and no longer presents its former appearance, that is to say, the depression.

There is another form of abnormal cicatrix which is observed quite as frequently in children, a cicatricial contraction of the jaws, usually consequent on burns, gangrene of the mouth, etc. Formerly all the methods consisting in the division of the contractions causing the adhesion of the cheeks to the lower jaw, combined with the introduction of foreign bodies of various kinds into the mouth to prevent a recurrence, failed with us as with our predecessors. All other surgeons, as well as ourselves, have had very incomplete results from excision of cicatrices in the mouth, as proposed by Delpech, incisions as practised by Serres, of Montpellier, or wooden wedges between the jaws, suggested by Gensoul after excision of the contractions. The plan of Essmarck, which laid down the principle of the resection of the anterior portion of the jaw, and which I have not practised, appears to me of very little advantage, if I may judge

of it, not by the results of several foreign surgeons who claim to have been successful with it, but by the attempts made by some of my colleagues of the Société de Chirurgie, who have had nothing but failure or partial success not of a kind to encourage them to repeat them. Nevertheless, if called to a patient who had his jaws so tightly pressed together that he could only take fluids, if he was wasting away on account of his nourishment being restricted to liquid or feculent substances, and desired an operation to enable him to pass between his jaws solid substances, meat, etc., I would decide to resect a part of the middle portion of the lower jaw, according to the plan of Essmarck. I believe it, however, to be prudent, before this resection, to attempt to divide the contractions, to introduce wedges between the jaws for a long time and frequently repeated, and, after excision of the bands, plates between the internal surface of the cheek and jaw, worn as long as possible.

CHAPTER LXVI.

DISEASES OF THE UMBILICUS.

INDEPENDENTLY of umbilical hernia, of which we have spoken, we may refer to several pathological lesions which are met with in children in the umbilical region.

Hemorrhage.—Usually, the umbilical cord shrinks up from the first to the third day after birth, and on the fourth or fifth day the cord dries up, then separates with more or less suppuration, leaving beneath it a cicatrix, which is the umbilicus. In children who die at birth, this drying up of the cord is not observed; the child must live two or three days before this vital phenomenon takes place. Sometimes this work of nature is interfered with by hemorrhage. In the progress of labour, violent tractions on the cord, or the descent of the child suspended by the placenta, drag it or tear it from the cord at its point of insertion to the umbilicus. This dragging has been found to take place, but rarely, as a consequence of the parturient efforts, when the cord was extremely short. The child has also, in such malformations, died as the result of hemorrhage seen at birth, which is most frequently,

however, met with at the period of the separation of the cord, six, seven, or even more days after birth. The blood then flows in an intermittent dribbling manner, and not by jets. The hemorrhage sometimes takes place because the ligature is not tight enough; it is sufficient then to apply a fresh ligature more tightly above the other one.

This hemorrhage may be observed in children suffering from purpura hæmorrhagica. If we find petechiæ on the body, the diagnosis is not in doubt. At other times, we cannot discover the cause. The hemorrhage may be considerable and the cause of death, if not immediately relieved. If it is only slight, it may be easily arrested, but in many cases we must act energetically. The remedies suggested have been alum, colophony, ice, nitrate of silver, and even the red hot iron; but we should prefer to all of these either a suitable application of perchloride of iron or ligation in mass. In using the former, we have derived benefit, under two or three circumstances, from at first making compression of the entire umbilicus between the index finger and the thumb of the left hand; and, after having clearly seen the point from which the blood comes, having stopped the compression for a moment, to renew it afterwards still more effectively, we apply on the spot from which the blood flows a small ball of hard charpie, held between the dressing-forceps and previously impregnated with the perchloride, and kept there by compressing it for four or five minutes, and continuing it by means of disks of agaric applied over the charpie, the whole of it being secured by a body bandage. A still more certain means consists in the ligation of the whole umbilical mass. To make this ligation, we must pass a pin through the base of the umbilical tubercle, and pass beneath the pin a thread, turning it several times to make it very tight. This method has appeared to us, as well as to other surgeons, the most efficacious. If, however, we discover a general cause, such as purpura hæmorrhagica, we must prescribe astringents internally, and chiefly with two drops of perchloride of iron given diluted with coffee-water, followed by a spoonful of milk, and repeated according to the result.

Umbilical Vegetation.—We have often, in new-born children, met with a vegetation in the depression of the umbilicus. In the first weeks after birth, sometimes even at the end of three or four months, it resembles a small red polypus of the size of a grain of wheat or a pea. It is pediculated, allows a small amount of bloody

serum to discharge, and sometimes produces inflammation. Frequently, in time, it is detached, but it irritates the umbilicus. It is easy to produce separation with a thread placed around the pedicle. It is nothing more than a granulation, taking on the appearance of a small polypus.

Phlegmon of the Umbilicus.—It sometimes happens that the separation of the umbilical cord is accompanied with a circumscribed inflammation, which occupies the umbilicus and sometimes the vein and artery. This grave disease presents, at the autopsy, consecutive pathological alterations, as detected several times by Dr. Maynet, who has written on this subject. The alterations, which we have twice seen, are, as a general rule, rapid putrefaction, the epidermis of the abdomen being elevated, macerated, with a black discoloration around the umbilicus, depressed abdomen, the cellular tissue around the umbilicus infiltrated with purulent serum, but not a collection of pus, usually a circumscribed redness in the peritoneum around the umbilicus, sometimes general peritonitis, or inflammation of the umbilical vein alone, at other times inflammation of the vein and artery.

These grave pathological lesions, recognized many years ago and still more lately by MM. Baron, Trousseau, and others, have the following causes and symptoms.

Causes.—These are sometimes traumatic, ligation of the cord badly accomplished, irritating ointments applied over the umbilicus, or want of cleanliness; at other times general, as improper diet or poor nourishment to the new-born, or, as established by Maynet and Bouchut, the influence of puerperal peritonitis in the mother.

Symptoms.—These are at first constitutional, and may interfere with our at once recognizing the disease, which often occurs in the earliest days after birth, on the eighth after delivery. The child is constantly fretting and crying, there is frequency of pulse, with weakness, diarrhœa or constipation, sometimes with aphthæ, and the child refuses the breast. We discover around the umbilicus an inflammation which accompanies the separation of the cord, and soon an ulceration which retards this separation, added to which is an erysipelatous redness, more and more pronounced around the umbilicus, and tumefaction in the form of a ring. The ulceration becomes still deeper, the edges inverted, the surface covered with a grayish membrane, and the pus fetid. The erysipelatous circle, more and more swollen, is covered with phlyctenæ

filled with serum, and the tumefaction invades the whole surface of the abdomen, the wound soon taking the characters of hospital putrefaction.

This disease, the progress of which is quite rapid, sometimes lasts two or three days, is, as a general rule, grave, and terminates in death. If, in some very rare cases, a cure results, it is but very slow; the ulceration does not then extend, the false membrane becomes detached, granulations are developed, the pus is arrested, becomes of a better character, and the general symptoms diminish; the child again takes the breast and drinks what is offered it.

Treatment.—Internally, we must combat the constipation, which is of very frequent occurrence, giving calomel in fractional doses. Externally, emollients should be used at first, but as speedily as practicable, and this plan has succeeded in two of our cases; in the first, applications of mercurial ointment with belladonna, then, as soon as possible, elastic collodion. In case of ulceration, powdered tannin and cinchona should be employed, the abdomen being covered with wadding. We have not used cauterization externally, according to the advice of M. Maynet, with a paste of chloride of zinc, nor perchloride of iron, according to Dr. Valette of Lyons, who has employed it both internally and externally.

CHAPTER LXVII.

EPIPHYSEAL SEPARATIONS.

THE epiphyses are only consolidated at a certain period of life. Up to that time, they are separated from the bones by a cartilaginous portion. Traumatic separation of the epiphyses, which was described a great many years ago, can only take place before complete solidification, and is consequently met with in children between four and sixteen years of age. Nevertheless, there are cases in which the union is delayed, from which results traumatic rupture in those between eighteen and twenty years and more. Epiphysary separations are not very common. During twenty years of practice at the Hôpital des Enfants, it has often, perhaps,

happened that I failed to recognize them, for I have seen very few cases of this affection. Sometimes I have had occasion to detect it in the extremities of the humerus, then in the inferior extremity of the radius.

Causes.—We may admit, as predisposing causes, rickets, constitutional syphilis and scrofula, which put children in proper condition for epiphysary separation, without referring to the deep affections of the articulations, which may also make us fear the prolongation of arthritis to the connection of the epiphyses, in this way producing the separation; but the traumatic causes are those especially which may produce the separation of the epiphyses from the shaft. Thus falls and blows, striking in the vicinity of articulations, may disunite one or several epiphyses. Epiphysary separations may occur in certain stages of the process of labour.

The *symptoms* of these lesions are those of fractures in the neighbourhood of the joints; mobility between the separated parts, and sometimes crepitation, so that we have often remained in doubt whether the case was one of epiphysary separation or fracture. The age of the patient has sometimes led us to say that there was epiphysary separation rather than fracture. Crepitation, less marked than in fractures, may again induce us to think that the case is one of forcible rupture of the epiphysis.

The *prognosis* is not more grave than that of simple fracture. As a general rule, the *treatment* is that of fractures in the vicinity of the joints. We must especially resort to immobility of the neighbouring articulation.

CHAPTER LXVIII.

CUTANEOUS TUMOURS.

The follicles, the derma, and epidermis may form superficial tumours on the skin. They are often met with in children, and require the same care as in adults.

Acne is an affection characterized by small tumours formed by hypertrophied sebaceous follicles, containing an accumulation of a varying amount of fatty substance. They are chiefly seen on

the nose, the cheeks, sometimes near the nipple, on the sternum, etc. When pressed between the fingers, these little tumours may be squeezed out, and there will be discharged, through the orifice of the follicle, a whitish substance of vermicular form; and this constitutes the whole treatment.

Follicular Cysts.—These are encysted tumours which take their origin in a cutaneous follicle. The envelope is cellulo-fibrous in the thickness of the skin, which distinguishes them from wens, properly called, which are in the subcutaneous cellular tissue. The membrane of these follicular cysts is smooth, even, soft, and often filled with villous prolongations on its internal surface. It is not susceptible of degeneration, as the other cysts are. We find, in the interior, either a sebaceous matter, or an unctuous and ropy substance; this is atheroma, or else a substance having the consistence of honey, and hence called meliceris.

These cysts are met with in the hairy scalp in the thickness of the skin, are developed and may acquire a certain volume without causing pain. They are not sensitive to the touch, are of variable size, increase slowly, and do not terminate by resolution, but remain for a long time stationary. They sometimes become inflamed, and may open externally; the cyst is thrown out externally with suppuration, but it may remain and be filled up afresh. In some cases, we find that, the cyst being opened and emptied, there remains a fistulous spot, and fungous vegetations spring from its interior.

These follicular cysts, which may sometimes be taken for cold abscesses or lipoma, are, as a general rule, of little gravity. Nevertheless, if they acquire a certain volume and inconvenience the patient, the indication is to relieve him of them.

The *treatment*, in children as in adults, demands removal, not with the bistoury, but with caustic. We for a long time knew that by the use of the bistoury we could very promptly relieve our patients, and that very often we could produce a rapid cure, but for a long time also we had the opportunity of knowing that most frequently, as the result of this removal, very severe erysipelas resulted. We are in favour of employing Vienna caustic, as we do, as a general rule, for all subcutaneous cysts. This method is much longer than when a cutting instrument is used; it may leave a more decided cicatrix, but it obviates mortal symptoms, and we should, as a matter of good surgery, give it the preference. We have already,

in Chapter IX. (page 79) referred to the method of applying the Vienna caustic.

Spots of different colours, circumscribed, brown, yellow, prominent or not, developed on the skin, known under the name of *lentilles*, or commonly nævi, of variable size, may remain stationary during the whole of life, but they may increase in time both in width and thickness, and at a certain period they give origin to hairs. Under such circumstances, these spots, which, when of small dimensions, may be looked on as beauty spots, have a disagreeable appearance. It appears to us that the indication, when they are too large, is to remove them in young people, and we know no better method than the application of a slight layer of Vienna caustic covering the surface of the spot.

Warts, whitish-yellow rugous excrescences, are developed on the hands, chiefly on the dorsal surface. They are usually multiple, rarely solitary, are elevated above the cutaneous surface, and are of various shapes, rounded, granular, angry-looking, more or less consistent, sometimes pediculated. They are formed by the epidermis, having a tissue of variable density, traversed by little vessels, especially appreciable at their base when they are cut transversely. The true treatment consists in excision with a bistoury or scissors, and in caustics, either nitrate of silver applied immediately after excision has been made of the wart as far as the point where the blood appears by the little vessels cut at the base, or a drop of nitric acid applied over the cut. Usually, this little operation may be performed two or three times, two or three days apart, on certain warts. In timid persons, we may, before resorting to this method, try to surround the affected fingers several times daily, and several days in succession, with compresses of linen steeped in acetic acid. This method has succeeded with us, in timid little girls, who dreaded the use of the scissors or the bistoury.

Corns are hard, callous, flat protuberances formed by the epidermis, and are met with on the toes, in children as well as adults, although they are much more uncommon in the former. We have, nevertheless, seen them in young children four or five years of age. Anatomically, the corn is composed of two portions; one superficial, dry, shaped like the head of a nail, formed of several layers of epidermis, sometimes quite easy to separate, and having no appearance of organization; the other, deeper, of a horny character, semi-transparent, springing from the centre of the former, and

penetrating through the derma as far as the tendons, the ligaments, and even the bones. This portion is painful on pressure, and when cut into several vessels are seen, even by the naked eye. In the centre of the corn we find a depression or cavity of a gray colour, surrounded with a ring of cartilaginous appearance.

We must distinguish callosities from corns; the former are only formed by the thickening of the epidermis, are seen in the heel, over the head of the first metatarsal bone, and do not present that portion of a conical shape situated in the middle of the corn, which is buried over the deep parts. The use of proper shoes is the prophylactic means; they should not be too tight, but they should not be too large.

Treatment.—We may, by rest, emollients, and cataplasms, palliate the pain produced by corns; and baths, especially sulphurous baths, employed when the inflammation is not too acute, are excellent palliatives. The remedy *par excellence*, however, is to cut the corns, confining ourselves to the removal of the callous portions as far as the sensitive parts, refraining from going further. Finally, the curative method is extirpation by the bistoury, a delicate operation performed with fine forceps and a bistoury, with which we slowly and carefully accomplish the removal of the corn as far as the root. This little operation is very difficult, and, for prudence sake, we cannot completely extirpate it. As for caustics, they are very difficult to handle. We see too many accidents consequent on their use, to advise them in all cases indiscriminately, and we should prefer the palliative methods to which we are often compelled to resort, but without danger.

We may meet with *bony growths* in children as in adults. We have had occasion to observe them on the toes, and chiefly under the nail of the great toe. They require excision with a strong bistoury.

CHAPTER LXIX.

CRUSHED FINGERS.

We have had occasion, both in hospital and private practice, to observe many cases of crushed fingers in children. The worst of

these were under treatment in the hospital, for, in private practice, though we may sometimes meet with severe injuries of the fingers and even of the hand, the cases are, as a general rule, less serious and limited to one or several fingers, and usually to one or two phalanges, especially the ungual phalanx.

Causes.—In printing offices or workshops in which machinery worked by steam is used, young workmen or apprentices get their fingers caught in the gearing, and these are the most fatal causes met with, producing very serious wounds, which sometimes involve all the fingers or the entire hand, sometimes the arm, and even the patient's life. There is hardly a month in which we do not have cases of this kind to treat in the Hôpital in the Rue de Sèvres, and still more frequently in the Hôpital Sainte Eugénie, on account of its proximity to the manufactories in the quartier Saint Antoine, where many children are employed as apprentices. Other less serious causes occur, especially in civil practice, from windows, doors, drawers, etc. in which one or two fingers become pinched and sometimes badly crushed.

Symptoms.—We meet with cases of but little gravity, and sometimes of the most serious injuries, in children who have had the extremity of one or several fingers pinched in a door or in such tables as have a part movable and raised at will. We then notice simple pressure with wounds or contusions of the soft parts, without fracture of the phalanges. At other times there is fracture with flattening of the phalanx; and in certain cases, nothing like fracture appreciable. Sometimes, especially when the hand has been caught in a machine, the lesions are of much greater extent; portions of fingers are carried away, sometimes one or several; there is laceration of the soft parts of the tendons, the wounds extend as far as the dorsal surface of the hand, and the metacarpal bones are fractured or denuded. All these fractures are comminuted.

These several lesions, which are very different from each other, the most circumscribed as well as the most extensive, present numerous varieties, and may all give rise to nervous symptoms, phlegmon, erysipelas, or purulent infiltration, or require amputation. On account of these serious complications, amputation of the phalanges of the fingers has been performed for a long time, and even of whole hands which appeared to be so thoroughly crushed, that it was hoped that, by substituting a simple wound for a very

complicated one, all the consequences just detailed might be obviated. In the early days of our practice at the Hôpital des Enfants, we made quite a large number of amputations of greater or less importance, from the phalanges to the forearm. For a certain number of years, however, encouraged by the proper use of cold water, we have almost entirely abandoned all these operations, except in cases attended with very considerable mutilation; for example, in complete comminution of the soft parts and of the bones. Otherwise, when the phalanges, the fingers, and even the hands are fractured with contusions and lacerated wounds, we may and should attempt to preserve the part, even in very serious lesions, or in certain almost total separations of a finger.

We employ continuous irrigation with cold water in warm seasons, and water moderately warm in cold seasons, taking care not to cease its use abruptly, but at the end of three days diminishing gradually. As for the dressings that we make in such cases, we confine ourselves to surrounding the affected parts with fenestrated linen spread with cerate and covered with charpie, the whole lightly supported with a bandage, and we place the hand under continuous irrigation, or else we place it on a mat surrounded with a piece of isinglass plaster, and we advise that the affected part shall be frequently wet without removing the dressing, if this be not oftener done than every two or three days. We take good care in all cases not to employ such agents as may press the fingers together, such as strips of plaster, which we look upon as injurious in the greater number of cases. We prefer to support lightly the parts which appear to be separated or even almost entirely detached. Immobility of the wounded parts is indispensable, and the hand and the fingers should be placed on a wooden splint covered with linen, retained by bandages lightly applied.

Continuous irrigation prevents accidents which might occur. At the end of three or four days we should commence to support more firmly the parts which have a tendency to be separated. We thus avoid the pain and tumefaction of the injured parts. We must only gradually employ retentive methods. We often find, in this mode of treatment, that the most mutilated portions tend to become detached naturally. In cases of crushing of the extremity of a finger with fracture of the phalanx, the nail becomes lost. Sometimes portions of soft parts and even of bone become detached, but we also see parts that are very severely contused that do not become gan-

grenous but regain all their vitality. We have seen flaps of the skin, which could scarcely be retained with fenestrated linen and charpie, becoming approximated, and articulations of the phalanges which were opened, not becoming inflamed, and even closed. Thus we see the fingers or portions of fingers preserved, which have been on the point of being sacrificed.

As the inflammation becomes extinguished, and the gangrenous parts are naturally detached, and the hand of the surgeon has promoted the separation of the slough, we must make the dressings more retentive, so as to maintain as much as possible the normal shape of the parts. There is nothing then to oppose our applying strips made moderately and gradually tighter at each dressing. Tonic liquids, such as alcohol, or spirits of camphor more or less diluted with water or glycerine, or aromatic wine, are employed with benefit. When, in crushing of the fingers, the wounds are closed, we derive advantage from placing the ends of the fingers in a kind of thimble of bone covered with wadding, which should come up on the fingers to a distance corresponding to the extent of fracture, whether one or several phalanges be broken. This serves also as a protector as long as the extremities of the fingers are not sensitive. These thimbles should be held with a finger-stall of skin or cloth, secured at the wrist by tapes. It is the completion of a treatment of the most useful kind for children, which is especially indicated in cases in which the nail is lost and requires a good deal of time to grow again.

Sometimes granulations occur, which should be repressed with alum, especially in the place which will be covered by the nail.

CHAPTER LXX.

LANCING OF THE GUMS.

In former times, and also at the present day, many diseases of childhood have been attributed to dentition. It is especially the want of familiarity with diseases of children, which is the cause of this opinion, too generally diffused, even among physicians. The child is subject, from its birth, to various diseases observed at all

ages. It may be attacked with a number of these during first dentition, and we should be able to recognize them. The irregularity of the process of dentition may nevertheless interfere with the development; they may be cut either too rapidly or too slowly.

By the eruption of the first teeth, which do not appear for several months after birth, we at first notice ptyalism a long time before the tooth makes its exit from the alveolus. This flow of saliva is a salutary phenomenon; it prepares and renders supple the tissue of the gums. The salivary glands become engorged, and there is a peculiar sensation which leads the child and the young animal to bite the substance which it seizes. This pressure of the gum is useful, and consequently favourable for promoting the separation which occurs between the two layers of bone to gradually open the alveolus. At this period corals are useful, but somewhat later, when the gums become sensitive and the point of the tooth commences to press on the swollen tissue, it is much better to give children, instead of hard substances, marshmallow or liquorice roots—in a word, bodies easy to soften with the saliva. Children frequently accomplish their first dentition without having any bad symptoms, but sometimes the tissue of the gum becomes tense and swollen; there is even thirst, fever, and redness of the cheeks. This is the fever of dentition. At this period we must pay careful attention to the child, and learn if these symptoms positively depend on swelling of the gums alone or on any other disease, such as aphthæ, diphtheritic affections, or convulsions, which may manifest themselves under the influence of dentition, as a result of the congestion, which this process may develop in that region of the head.

We should at first employ in these cases only emollients, fomentations over the gums with the finger impregnated with a soothing solution, borax, honey of roses, etc.; slight derivatives acting through the intestinal canal; pediluvia, the use of wadding boots covered with isinglass plaster, secured by tapes to the legs, to prolong a heat which produces transpiration in the lower extremities. When these simple means, which most frequently succeed, fail, we may sometimes resort to incision of the gum, which appears red and distended by pressure of the tooth. This little operation is especially indicated if convulsions are produced by the pain.

To perform this operation, it is necessary that an assistant shall hold the child's head firmly; the operator then separates its cheek

with a finger of his left hand, holding in his right a bistoury, the blade of which is wrapped in linen in two-thirds of its extent, in such a way that the point is only uncovered for rather less than half an inch. At first one incision should be made transversely, then another, which will produce a crucial incision. It is still better to remove at a single cut a flap of the gum, without making any previous incision. The swelling is more easily reduced in this way, with the advantage of not having the wound closing up on the very next day. We should introduce the extremity of the finger into the wound, to assure ourselves if we can detect the tooth, and if the alveolus is not too tightly pressed, and does not require an incision, which can be readily done with scissors. We must not too frequently perform this operation, which, however, is a harmless one; we must particularly reserve it for the molar teeth, the tubercles of which oppose more resistance to the tissue of the gums. We must also urge the importance of relaxant and calming agents, before deciding to operate. We have obtained successful results, but we have observed that by making the incision too soon, we may have sometimes retarded the escape of the tooth, because we may open the dental capsule before the tooth has reached its degree of perfect ossification; it then makes its appearance very slowly. It is often then more prudent to refrain from it.

CHAPTER LXXI.

ABSCESS OF THE NASAL SEPTUM.

CHILDREN have very often been sent to us who were supposed to be suffering from nasal polypus, and we have discovered, as a general rule, these supposed polypous tumours to be purulent collections seated under the mucous membrane covering the vomer.

Causes.—These abscesses seated in the nasal septum are most frequently developed under the influence of falls or blows on the nose; sometimes they are occasioned by a disease of the vomer, as caries or necrosis, often from a scrofulous cause. It has been among lymphatic children that we have met with this affection.

Symptoms.—When these abscesses are developed as the result of a fall on the nose, or a blow on this region, there are pain, swelling,

and sensibility to the touch, and the patient experiences difficulty in respiration through the nose. In examining the interior of the nostrils, it appears sometimes that the nasal septum is inclined to one side or the other, or presents on both sides tumefaction, with sensitiveness to the touch, and fluctuation easily recognized by introducing the little finger, feeling the projecting part with the pulp of the finger, and compressing the nose on the other side. These abscesses have not at all the appearance of the mucous polypous tumours which we have scarcely had the opportunity of observing in children, and which, besides, are movable and pediculated; such is not the case in these abscesses. Left to themselves, the latter may open naturally, but this takes place slowly; the patient sometimes suffers for a long time, and is always more or less embarrassed in respiration.

In acute cases, it is necessary to give issue to the pus just as soon as it is appreciable. In chronic cases, which are developed more slowly without great pain, there is less soreness, and we may postpone it. In any event, emollient injections and fumigations may be employed, but the true curative method consists in puncture performed with the point of a bistoury, which must be guarded with a strip of linen to within about half an inch of its extremity. In this way, when we introduce it into the nose, we avoid wounding the border, if the patient should happen to move. It is also essential, in this little operation, that the patient should be held firmly, with his head supported on the chest of an assistant, with his face turned to the light. When the incision has been made, pus flows out freely, and its discharge may be encouraged by pressing the nose, and causing the patient to blow.

The next day, if the wound has a tendency to close, we may introduce into it the end of a catheter to separate the edges of the wound, and by pressure may cause the freshly formed pus to be discharged. We may also use injections, which will vary according to the case, being emollient at first, and afterwards detersive, if such is the indication. As a general rule, such children are easily cured, and we have always had success in many cases in which physicians have misunderstood these abscesses, and have even employed several remedies uselessly.

It may be, that, if these abscesses are occasioned by a disease of the vomer, the indication will be to subject the child to a general anti-scrofulous treatment, for in these cases there may exist more or

less extensive necrosis of the nasal septum, which is only cured after the separation of a portion of necrosed bone, and this sometimes requires a long time.

CHAPTER LXXII.

CONGENITAL LUXATIONS.

Articular displacements existing in children at birth have received the name of congenital luxations. Since the last investigations of M. Guérin on this subject, they have been very numerous, some of which are quite rare. Having only had occasion to meet with a small number of these luxations, if we except club-foot, congenital luxations of the thigh, a few cases of luxation of the clavicle, and luxation of the head of the radius, we cannot speak in a practical manner on this subject, and we shall have but little to say on the cases which we have seen. Several of these luxations, however, were pointed out a very long time since, but lately a greater number have been described. The list of congenital luxations observed on the living subject and on the cadaver by M. J. Guérin, is as follows: 1. Occipito-atloid luxations; 2. Luxations in various parts of the vertebral column; 3. Complete luxation of the jaw in the zygomatic fossa; 4. Luxations of the clavicle on the sternum inward, forward, and backward; 5. Luxations of the scapular extremity of the clavicle upward and outward; 6. Scapulo-humeral luxations downward, inward, upward, and outward; 7. Ulno-humeral luxation backward; 8. Luxation of the head of the radius upward and forward; 9. Luxation of the wrist forward, backward and upward, and backward and outward; 10. Sacro-iliac luxation upward and backward, diastasis of the pubes; 11. Coxo-femoral luxations, upward and outward, directly upward, forward and upward, backward and upward; 12. Incomplete luxation of the knee forward, incomplete backward, incomplete inward and backward, and backward and outward; 13. Luxations of the foot, incomplete tibio-astragaloid, incomplete calcaneo-astragaloid, astragalo-scaphoid, calcaneo-cuboid, and metatarso-phalangeal. Several of these congenital luxations have been met with in anencephalous monstrosities, others in children at birth, or in children of four, eight, ten, and fifteen years of age, and even older. Speaking in a

general way, congenital luxations are quite rare, are often multiple, and sometimes seen on two congenerous limbs, and are observed with other anomalies, which are frequently the causes of non-viability.

Post-mortem examination of these luxations presents variations, according to the period of life at which it is made; and great differences are observed in the fœtus, the child, and the adult. Dissection of the fœtus gives us ligaments, articular ligaments, relaxed, not lacerated, as M. Guérin remarked; there is not complete luxation, but we can separate very easily the articular surfaces, as cannot be done in the normal articulation. As the patient becomes older, two years or four years or more, we may detect much more readily the precise nature of these different deformities. Thus we find extremities of bones without definite shape, articular cavities becoming filled up and disappearing, new ones formed in their vicinity, new ligaments developed, all the alterations, indeed, that are met with in unreduced traumatic luxations. The limb may become diminished and shorter, the muscles retracted, and, in addition to this, atrophied on account of the small amount of movement it undergoes, this being always more limited than in cases in which the limb is in its normal condition.

The *causes* of these congenital luxations are very obscure, for as in club-foot we are unable to make direct observations, we must supply the deficiency with theories. According to the views of some, congenital luxations are original; others claim that they are hereditary, and cases have been cited to prove it. Diseases of the nervous system may be the cause of these luxations; convulsions, for instance, according to M. Guérin; so also arrest of development, perhaps also malformations of surfaces. Articular diseases may also be developed in the womb of the mother, and then these luxations have for their cause an arthritis occurring at different periods of pregnancy, hydrarthrosis, etc., according to the opinion of Malgaigne of Paris. Mechanical injuries operating on the uterus during pregnancy have also been supposed to produce these luxations. It may also happen that in a natural labour the child may produce a luxation, and with much more reason in a tedious labour requiring manipulation and the use of instruments. Which ever cause of all those mentioned may be the real one, we find these luxations at birth, or some time afterwards, with symptoms analogous to traumatic luxation.

To refer only to congenital luxations which we have had occasion to observe, we may remark that, 1. In luxation of the clavicle, we have found the symptoms of this dislocation of the sternal extremity forwards; at birth, as at a later period, the bandages which must be applied to support this luxation, which is quite easily reduced, irritate the child's breast, and cannot be continued. Besides, no bandage gives proper support to the luxation, and none can prevent the reduction from being very incomplete. 2. Of luxation of the head of the radius forwards, which we have seen two or three times, the same may be said as in luxation of the clavicle, it not being very decided at birth, but becoming in time more appreciable. Reduction was quite easy, but could not be maintained. 3. Cases of congenital luxation of the coxo-femoral articulation, which we have more often seen, we have found to be more frequent in girls than in boys, and, as a general rule, we have noticed the following symptoms. Usually we have met with the luxation upwards and outwards, often on both sides symmetrically; sometimes, however, we have seen both femurs differently luxated on the right and left sides.

As the attention of parents is not generally awakened until the child commences to walk, it is only at the age of a year at the earliest, that we have had occasion to see these cases. We have not had the opportunity to observe them at birth, as M. Verneuil had, who had the advantage of examining a dead fœtus which had scarcely breathed. This little subject presented a luxation of the left side, which was incomplete, the hip of that side being more elevated, the thigh being flexed one-fourth on the pelvis. In decided adduction combined with a movement of rotation inwards, the upper portion of the femur formed a considerable prominence backwards, outwards, and upwards, the articular movements were impeded, flexion and rotation outwards were restricted, extension was but slightly practicable, and abduction was impossible. Only when the child has attained the age of one or two years have we observed these phenomena, which constitute luxation on the living subject. When the luxation is only on one side, there is a remarkable difference in the length of the two limbs, and the amount of their shortening varies according to the degree to which the head of the femur ascends in bilateral luxation. They are out of all proportion to the trunk; the thighs appear short relatively to the legs; the great trochanter is more or less approximated to the iliac crest, and

is projected outwards and thrown backwards; there is separation of the great trochanter from the median axis of the body; the nates present a rounded prominence formed by the head of the femur more or less appreciable when the head is buried in a new cavity of reception, or it may be made more apparent by rotating the limb inwards and flexing it. As remarked by M. Bouvier, we should seek the head of the femur forwards, near the iliac spine, by instituting in the extended limb movements of rotation inwards and then outwards.

The femur is oblique inwards; and in double luxation, the patient being in a standing position, the two knees are seen to touch. The thigh is of large size above, and small below; there is a depression in the groin, and when movements of rotation are instituted by placing the fingers in this depression, we cannot feel the head of the femur turn. This is, however, what is often remarked in many cases in which there is no luxation. On the luxated side the nates are flattened, and enlarged transversely, and the fold of the nates is more elevated.

In double luxation, if the patient is in an upright position, the pelvis is thrown forwards, and the anterior iliac spines are brought nearer to the axilla. There results a very decided concavity in the lumbar region, the patient looking as if he was saddle-backed. In unilateral luxations, the pelvis is inclined laterally, and the lumbar region and the spine describe an entire curve, with the convexity turned on the side of the luxated limb. In luxation of one side progression is made by the trunk being at first flexed on the luxated limb, the hip of that side being alternately depressed and elevated in such a way that there is a balancing of the whole body. In double luxation, the patient is raised on tiptoe and can only with an effort raise his feet successively from the ground to put one before the other, so that he walks with his body bent, and oscillating right and left.

Pathological Anatomy of Congenital Luxations of the Coxo-femoral Articulation.—The few autopsies we have made in these cases have exhibited to us cotyloid cavities of greater or less extent on the part on which the head of the femur glided. In one case we observed that the cotyloid cavity was higher than in the normal state; in another, we found it of very small depth and narrower than usual; we also found the head of the femur luxated upward, resting on the worn cotyloid edge, which looked as if it was trodden

down. The capsule was elongated and distended. We also had occasion to find the head of the femur atrophied, worn away, and deprived of cartilage.

Treatment.—We have abstained from treatment, not having been persuaded of the utility of extension, which, according to their accounts, gave cures to Drs. Humbert, and Jacquier, Pravaz, Bonnet of Lyons, and M. Guérin. Like M. Bouvier, we are in doubt in regard to these successes which have been pointed out as cases of cure. We have not employed apparatus for extension, and have been content with making the patient wear a belt surrounding the pelvis, and compressing the two trochanters, as advised by Dupuytren. We believe that we can displace the head of the luxated femur, but we cannot maintain it in position, and it constantly slips on the point in which it rested, before attempts were perseveringly made, and prolonged for a considerable time, whatever may be the apparatus employed.

CHAPTER LXXIII.

FOREIGN BODIES IN THE ŒSOPHAGUS.

We most frequently meet with foreign bodies in the œsophagus in children and old people. In the latter, it is due especially to the want of teeth, which does not allow of complete mastication, and besides, in some of them, to feebleness of the muscles which act in deglutition, and are attacked with more or less marked paralysis. In children it is often the want of teeth in the youngest of them, but is rather inattention and gluttony, or the desire to speak while holding a foreign body in the mouth, which cause these accidents. Most commonly, these substances are fishbones, pins, small fragments of wood, fruit stones, sugar-plums, sugar, sometimes portions of bone, and even small entire bones, patellas, vertebræ of winged animals, phalanges, morsels of bread or meat not well masticated, fruit swallowed whole, olives, pennies, chestnuts, sometimes pieces of money, buttons, etc.

All these foreign bodies act differently, according to their shape; they may dissolve, as sugar-plums and bonbons, and thus diminish

in size and pass onwards without stopping long. But insoluble substances may reach the thoracic portion of the œsophagus, more or less rapidly when they are not rough or of too large size; or else they are arrested by being of too considerable a volume, and at other times retained by the roughnesses on their surface, such as a piece of bone, or because they are pointed, as needles, pins, fish-bones, etc. They may become implanted lengthwise or obliquely, or crosswise in the mucous membrane of the pharynx, the pillars of the velum palati or the œsophagus. If the foreign body is of a certain volume, as a piece of money, a fruit stone, etc., it is arrested at the inferior orifice of the pharynx, and is then compressed by the contractions of the canal of the œsophagus. The muscular fibres, when they act, prevent it from either descending or ascending, and by its presence it produces convulsive movements of deglutition or vomiting, which wedge it in more tightly.

Frequently, if it descends lower, it penetrates the pectoral portion of the œsophagus more easily, and is less obstructed after having passed a spot corresponding to the upper portion of the sternum and the trachea. At last it arrives towards the lower portion of the œsophagus which enters into the diaphragmatic orifice. If the foreign body is of a certain size, there is difficulty in its passing through the cardia, and this causes great distress and a painful sensation all the time that it takes to pass into the stomach. Once passed, relief is experienced and the trouble is over.

Symptoms.—These are, continual or remittent pain in the region of the neck, violent and convulsive efforts of vomiting, with more or less difficult deglutition of solids; and the respiration may be embarrassed, if there is a body of any size pressing on the opening of the larynx before it arrives in the pharynx. If the substance reaches the pharynx or the œsophagus, it may still interfere with respiration by lateral compression of the trachea. If the foreign substance is arrested and remains, inflammatory symptoms arise, even when it is very small; a fishbone or a pin, may, even when it has passed through the stomach or been expelled by the mouth, leave a sensation of pain, which causes the patient often to believe that he has not been relieved, although he may have been so. If the foreign body is expelled, the slight local irritation ceases of itself; but, if the body remains, suppuration may be developed around it where it is attached to the mucous membrane. Sometimes it may be expelled by coughing, preceded by vomiting of blood mixed

more or less rapidly with pus, or pass into the stomach, carrying with it the foreign body.

More serious symptoms may be developed, as tumefaction of the face, obstruction of the respiration, and in the course of the neck sometimes a tumour appreciable to the sight and touch, which announces the presence of the foreign body, and frequently an abscess. In these cases, we must perform catheterization, holding the child seated on an assistant, who will support it with its chest on his own, securing its arms, while another assistant supports the head carried backwards. Then, armed with a properly proportioned œsophageal sound, the surgeon directs the instrument through the nasal fossæ, which is more easy in children who are unwilling to open the mouth, and who likewise bite the sound. We must conduct the instrument through one nostril, as far as the posterior wall of the pharynx, which we must closely follow, to avoid passing into the larynx. Then, if there is neither anxiety nor rancous cough, we may continue to push the sound and recognize the presence of the foreign body, which is met with at one point or another.

Treatment.—When such a child presents himself, and this frequently occurs, he complains of having swallowed a foreign body. If he experiences pain in the throat or the pharynx, examination with a tongue-depressor may often detect a fishbone, a pin, or a small portion of bone implanted at a point within sight, and then the foreign body may be extracted with a pair of forceps. In these easy cases we should not think of employing œsophageal catheterization, but when we can see nothing, and we presume that the foreign body is further on, we must not forget, before making an examination, that foreign bodies conduct themselves differently according to their nature. They may be expelled by efforts of coughing or vomiting; they may be swallowed and pass into the stomach, sometimes a short time after their introduction, by the efforts of deglutition, or a little later, after a suppuration is formed around the foreign body imbedded in the mucous membrane. In these cases nature has taken the trouble and surgery has nothing to do.

Arrived in the stomach, the foreign body may be expelled through the intestinal canal. Thus, in children, we have seen pebbles, buttons, pieces of money, fruit stones, and even pointed substances, such as a needle, after passing through the entire intestine, discharged more or less promptly by the anus. Nevertheless, we must not always count on so favourable a termination.

It has been found that the foreign body may open a passage and make an outlet for itself by ulceration; or it will tend to escape through the cervical region of the œsophagus, producing, as we have said, an abscess; or it may descend through the digestive passages and become engaged in another canal, as the biliary canals, or the appendix cæci; or it may ulcerate the trachea, and pass into the great vessels, etc., and cause subsequent mortal symptoms. In good practical surgery, being familiar with the formidable accidents that may happen, and without forgetting the successful results often observed, or being too rash, we must act according to the indications.

1. There are cases in which we can operate through the mouth and make extraction by means of forceps of different shapes and of various dimensions, as polypus forceps or cranesbill forceps. As a general rule, we have found these means very useful, either to extract bones engaged in the pharynx or in the upper part of the œsophagus, or to seize a penny that a small girl had swallowed, and which was arrested in the passage of the pharynx and the œsophagus. Generally, after having explored at first with the eyes, then with the finger or with the œsophageal sound, the indication is to perform certain extractions with the œsophageal forceps. When the foreign body is appreciable to the touch in the cervical region, we should hold the portion of the neck in which the substance is felt with the fingers of the left hand, which support it and prevent it thus from being pushed forwards with the forceps, which is directed with the right hand. This precaution is indispensable for the ready seizing of the body we wish to extract.

2. Sometimes we must, before removing the foreign body, unhook it; otherwise, we may thrust it further in. When, for example, a hook has been swallowed, which has occurred many times, the extraction should be made in the following manner: a steel ball is pierced at its centre, through which the thread is passed which holds the hook, and the ball is made to slide over the thread; then, using a reed, the knots of which are perforated, this last is conducted by means of the thread as far as the ball. We draw gently on the reed, and thus we may detach the hook, and in drawing on the thread cause the ball, the hook, and the reed to come up.

Another method that has been suggested is as follows: we endeavour to have a hook like that which has been swallowed, and we procure a leaden ball of a diameter double that of the hook

swallowed. This is pierced with a hole in which we engage the thread holding the hook; the weight of the ball which slides on the thread as far as the hook may unfasten it, and the whole may be withdrawn together.

Both of these plans, which resemble each other, have been resorted to successfully. Hooks have also been used; the double ring-hook of Graefe being the most effective. It represents a kind of small metallic bivalve hoop, in the centre of which is fixed a piece of whalebone, in such a manner that the two valves may be movable, and may be carried by the slightest pressure either to one side or the other. This instrument, of a volume which enables it to pass through the pharynx and into the œsophagus, is introduced deeply, going beyond the foreign body; then, in withdrawing it, the movable valves, on one side or the other, catch the foreign body, which may thus be extracted. It has done good service to Dupuytren, Blondin, Bérard, and others, chiefly for the removal of pieces of money.

We may also use a sponge fastened on a whalebone, which may be introduced without being moistened, between the walls of the œsophagus and the foreign body. The sponge is left several minutes beneath the foreign body we wish to extract; it thus increases in volume, and when withdrawn the foreign body is brought away with it.

3. When we cannot succeed by these various means of extraction, or the indication is not to employ them, we must resort to methods of pushing the foreign body into the stomach. In fact we may often, without great inconvenience, do this with a badly masticated morsel of meat, a fruit stone of greater or less size, etc. To push down these foreign bodies, we may successfully employ a large quantity of fluid, or of macaroni, of marmalades, or of pea soup, which may carry along the foreign body downwards. We had occasion, in a patient who had swallowed a needle while eating vermicelli, after having failed with emetics, which may sometimes be employed, to advise that he should drink every night gum-water, and take enemas; he had several alvine evacuations, in one of which, the next day, they found the needle. To carry the foreign body onward, we may make the patient eat prunes and panada, or else use leeks, as suggested by Paré. Finally, it is often of advantage to push forward the foreign body with a sponge fastened on a whalebone, etc.

4. If all these methods fail, and the foreign body is not dislodged, we must act in two ways: cutting into the œsophagus, either in the cervical portion, using as a guide the foreign body, which may be felt at some point or other; or else, if we cannot be guided by this foreign body, and it is lower down, we must, in recalling thoroughly the anatomical relation of the cervical region on the left side, perform œsophagotomy as described in the works on surgery. We may sometimes, if the foreign body is at a point corresponding to the larynx and the patient is suffocating, be obliged before everything else to perform tracheotomy, if we cannot at once extract it. We thus prevent death by asphyxia, and may then make up our mind afterwards as regards the removal of the foreign body.

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TO

GUERSANT ON SURGICAL DISEASES OF CHILDREN.